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OIL WORLD

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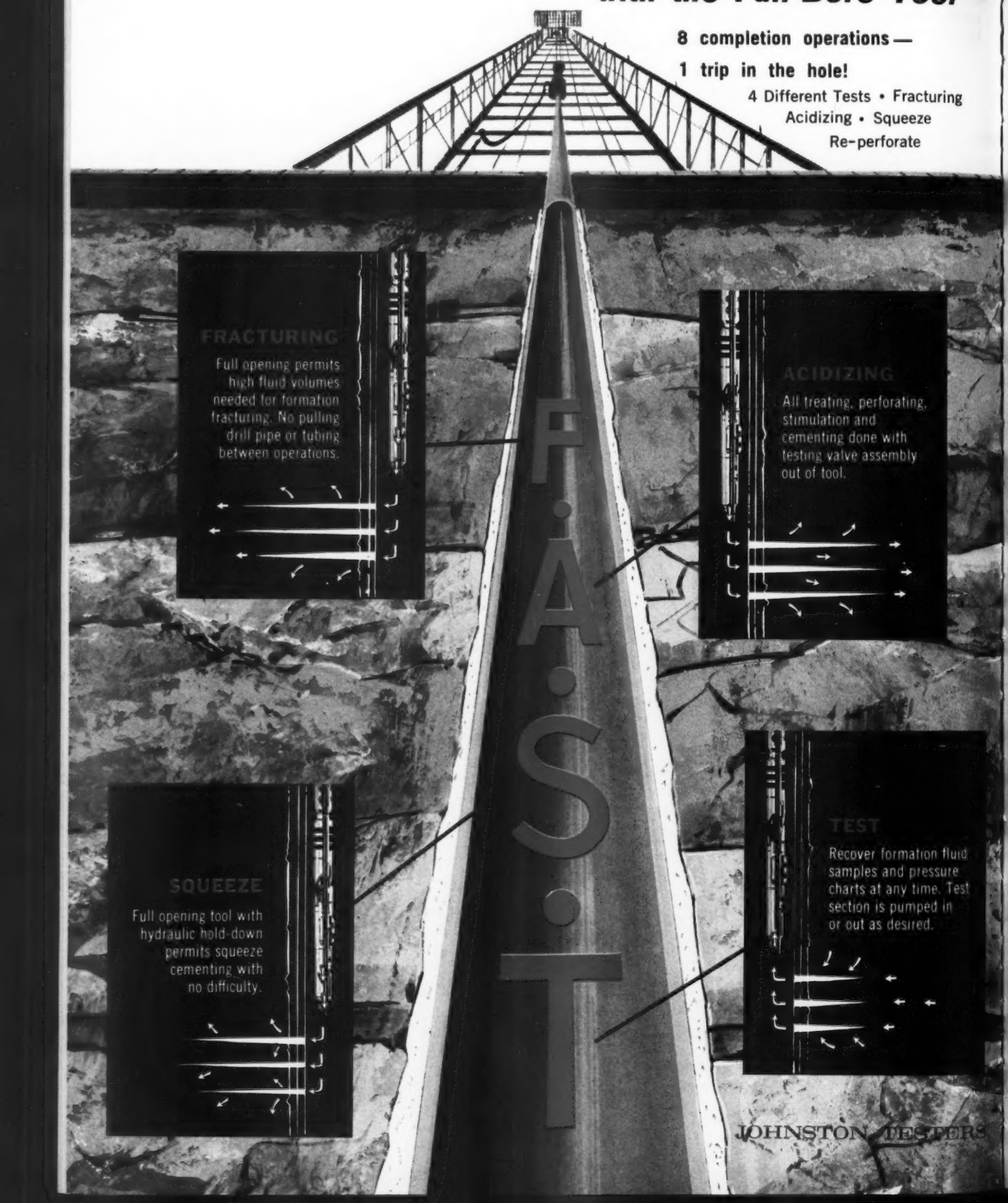

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Foreign Operations— Standard Oil Company of California

CALIFORNIA EXPLORATION COMPANY

California Exploration Company continued its basic functions through the year 1960; namely, (1) compilation, interpretation and evaluation of political, legal, economic, geologic, geophysical, and exploratory drilling data relative to exploration and development in certain areas of Latin America and the Caribbean; (2) formulation of long-range foreign exploration programs on a regional and country basis based on the evaluation of collected data; (3) the qualification of subsidiary corporations and the acquisition of oil rights in approved new areas; and (4) supervision and management of exploration programs in certain Latin-American and Caribbean countries.

(EDITOR'S NOTE—Standard Oil Company of California's Middle Eastern activities through its 30% interest in Arabian American Oil Co. have been widely publicized. Also well known to Western Oil people are the operations throughout the Eastern Hemisphere by Cal-Tex in which Standard has a 50% share.

Not so well known are the many and varied operations being carried on in the Western Hemisphere outside the United States by Standard, through subsidiaries which are mostly 100% owned. We believe that the accompanying round-up is the most complete that has ever been presented by an oil publication.)

Exploration supervision also dealt with exploration programs and activities carried on by other companies of the Calexco group under the respective following names:

Bahama California Oil Company (Bahama Islands): Bahama California Oil Company continued its exploratory efforts by geological and geophysical studies on its 15 million acre holdings offshore Bahamas. Joint efforts with the Bahaman Gulf Oil Company are continuing toward resolution of areas potential.

Bahama California Oil Company Limited (Jamaica): Bahama California Oil Company Limited re-

Offshore wildcat drilled from a barge, Domoil No. 1, against the Trinidad dawn.

Gravity meter taken from its protective case and leveled, is read through the microscopic lens of the eyepiece. (Richmond Exploration Company) Venezuelan jungle.

newed its exploration license over 2,865,011 acres in the Turks and Caicos Islands and offshore bank areas for an additional year.

Geophysical review work and interpretation were conducted during the year.

Bolivia California Petroleum Company: This company owns an undivided 50% interest in exploration concessions held jointly with Compania Petrolara Boliviana Shell. Also owned is a smaller interest in 891,667 acres (222,917 net acres) held jointly with Atlantic Refining, Shell and Bolivian Petroleum Corporation. As of the end of 1960, Bolivical's net holdings amounted to 4,713,445 acres.

Seismic mapping and geologic field parties continued their surveys. Geological and geophysical studies led to the selection of a drilling location in Zone I and the Santa Rosa-1 well was spudded on August 12. As of the end of the year it had reached a depth of 10,730 feet.

Two stratigraphic tests located in the northern part of Zone II were drilled to determine thickness of sedimentary section in the Zone II area.

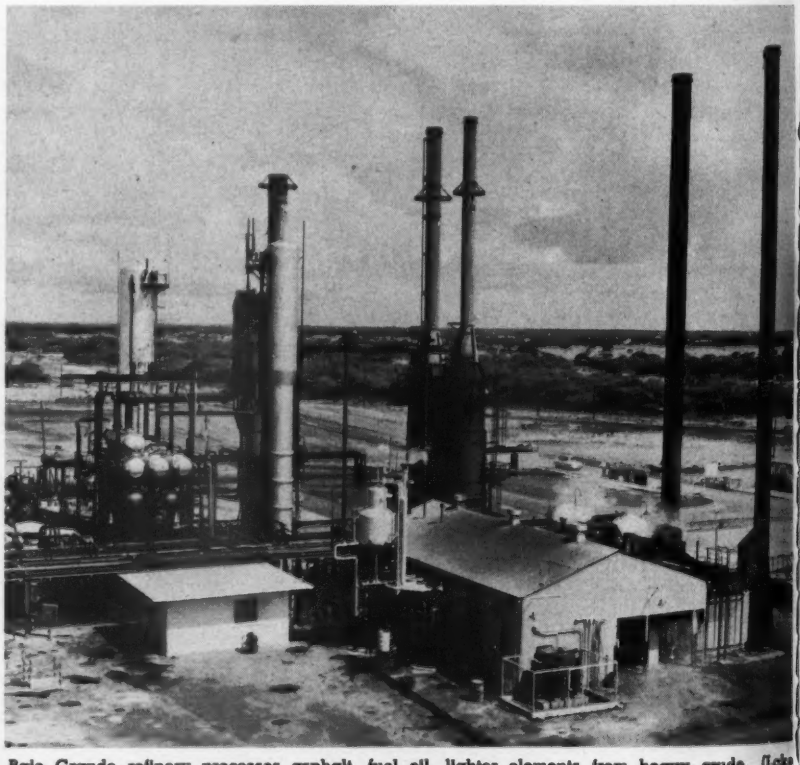
California Ecuador Petroleum Company: On November 29, Calec surrendered all of its remaining acreage in the country (1,169,321 acres in the Estrada and Maritime concessions) and Compania Petrolara Santa Elena (another wholly-owned Socal subsidiary) surrendered the remainder of its sole concession, 32,865 acres, on this same date. Government acceptance of these surrenders is expected shortly.

Decision to surrender offshore acreage was reached after the company's exploratory drilling program was completed without any discovery results.

California Oil Company (British Guiana) Limited: California Oil Company (B. G.) Limited, after geophysical review and re-interpretation of survey date, surrendered its exploration license covering 10,240,000 acres on its April 15th expiration date.

Compania Guatemala California de Petroleo: Acreage held by this company was increased in one wholly-owned Exploration Right and decreased in five other Rights, both wholly-owned and joint-interest. At year's end, the company's net acreage amounted to 335,414 acres, somewhat less than that held at the end of 1959.

Geological and geophysical studies were continued on both wholly-owned and joint-interest acreage. San Francisco-1 exploratory well, drilled on joint acreage, was abandoned in May of 1960. An acreage contribution was made for the drilling of the San Roman-1, a wildcat test that was abandoned in October.



Bajo Grande refinery processes asphalt, fuel oil, lighter elements from heavy crude. (Lake Maracaibo, Venezuela.)

Belice California Petroleum Company: This company was incorporated to acquire licenses in British Honduras but subsequent developments have suspended interest in this country.

Cuba California Oil Company: All exploration activities in Cuba continued suspended throughout the year.

Dominion Oil Limited (Trinidad): Dominion Oil Limited surrendered 29,612 acres of land area and 66,199 acres of its marine holdings during 1960, leaving a total of 352,287 acres of land and marine areas under license, lease or option held by this company.

Development drilling in 1960 that followed the South Domoil discovery in Gulf of Paria made in late 1959 has indicated a reservoir of limited extent and further development is currently suspended. Geological and geophysical exploration and interpretation were continued.

Richmond Oil Company (Peru): Several months of field work were conducted in the Montana during the year. However, the surrender of this company's exploration concessions totaling 492,676 acres was filed on May 31, thus completing the surrender of this company's concessions in Peru.

Richmond Petroleum Company of Colombia: During the year, some geophysical exploration was done on holdings in the North Central Basin and in the area close to the Venezuelan border. Evaluation of acreage through farmout testing was continued. At year-end, the company's net acreage under petroleum contract or application was 4,533,289 acres.

Mineral concessions held by the company in Cerros de la Sabana, covering iron, nickel, cobalt and chrome, now total 12,355 acres. Applications for concessions covering these same minerals are pending on 1,235 acres in Carro Metoso. A development agreement was consummated with a third party toward further evaluation of these mineral deposits.

General: As of December 12, 1960, the following companies were dissolved:

Compania California Argentina de Petroleo,
Paraguay California Petroleum Company,
Richmond Colombia Company,
Peruvian American Petroleum

Strike at San Jose fills all available storage capacity with high gravity oil in first test. (Rexco—San Jose, Venezuela.)

Geologist and assistant pause to orient their location in the Venezuelan jungle. (Richmond Exploration Company, Venezuela.)

Company,
Peruvian California Petroleum Company.

RICHMOND EXPLORATION COMPANY (VENZUELA)

Exploration: Exploratory studies during 1960 were directed principally towards the evaluation of presently held concessions in Western Venezuela. Due to the Venezuelan government policy of "no new concessions," there was no exploration of open lands.

Two exploratory wells were approved: IF-1 at Ensenada and the deepening of 70-4 at Boscan. The former project could not be initiated due to problems with surface owners and the latter, 70-4, is drilling at the time of this report.

Development: The pilot waterflood project continued throughout the year; cumulative injection is now 8 million barrels of water. Economic analyses now indicate that, for best economics, waterflooding of the field should await primary depletion.

Three development wells were drilled in the Los Claros concession. Two were completed as suspended producers, the third was abandoned as a dry hole. There was no development drilling in the Boscan Field during the year.

Production: Sales of Boscan crude and products were improved markedly compared with 1959. To meet the sales increase it was necessary to increase field potential from 73,000 b/d to 83,000 b/d by pump lowering and remedial work.

Production for the year was 24,000,000 bbl. compared with 18,000,000 bbl. in 1959. Boscan Field cumulative production has now reached 180,000,000 bbl.

Manufacturing and Sales: The Rexco Bajo Grande Refinery is now manufacturing and marketing nine different grades of asphalts, three grades of heavy fuel oils and an unfinished asphalt feed stock. The total sales of these products were approximately 11,400,000 barrels in 1960. Of this total 3,000,000 barrels were of asphalt.

In addition to the above products sales Rexco sold approximately 14,200,000 barrels of Boscan crude during the year.

The sale of asphalt through the Rexco sales facilities at the Bajo Grande Refinery and through distributors in other sections of Venezuela has increased appreciably during the year. It is expected that Rexco will supply an appreciable portion of the Venezuelan asphalt demand by the end of 1961.

THE CALIFORNIA STANDARD COMPANY (WESTERN CANADA)

Two highlights of 1960 operations merit attention.

The huge gas processing plant between Dick Lake and Homeglen-Rimbey gas fields was built during 1960. The company has about one-third interest in the plant and a similar interest in the reserves. In terms of capacity this plant is the largest of its kind in Canada.

During 1960, the company completed 12 wholly or partly owned exploratory wells, six of which resulted in discoveries; one oil well and five gas discoveries, as follows: (1) Calstan Meekwap No. 4-11-65-19, W. 5th, oil; (2) Calstan Shell Moose Mountain No. 16-6-23-6, W. 5th, gas; (3) Imperial Calstan Nordegg No. 6-17-41-17, W. 5th, gas; (4) Phillips B.A. Calstan East Kaybob 2-28-64-18, W. 5th, gas; (5) Calstan B.A. East Kaybob No. 2-18-63-18, W. 5th, gas; and (6) Calstan North Bantry No. 3-17-18-13, W. 4th, gas—all in Alberta.

In addition, the company has five wells drilling, one of which, East Meekwap 10-1-165-18, W. 5th, is an indicated gas discovery. A further four wells are approved and ready to start.

CANADIAN BITUMULS COMPANY, LIMITED

This subsidiary, 99.875% owned by International Bitumen Emulsions Corporation, manufactures and markets Bitumuls and Laykold Emulsified Asphalt products in Canada. Factories are located in Toronto, Montreal, Regina and Calgary. (The Calgary plant was constructed and went into operation during 1960.)

(Continued on Page 10)

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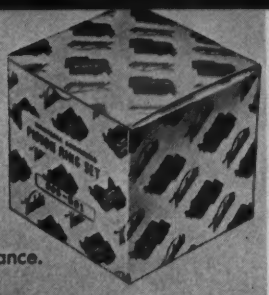

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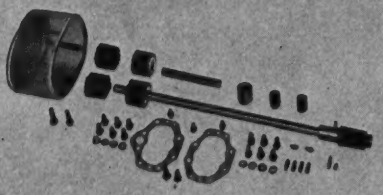

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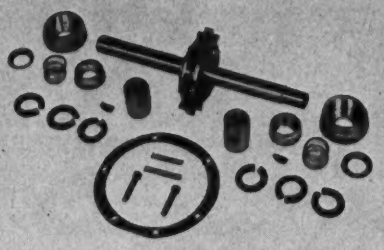

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> *—John Ruskin*

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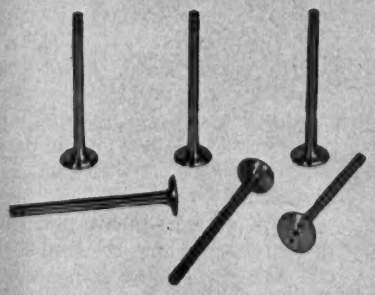

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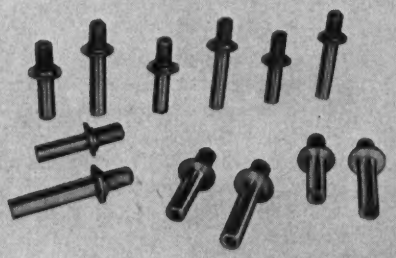

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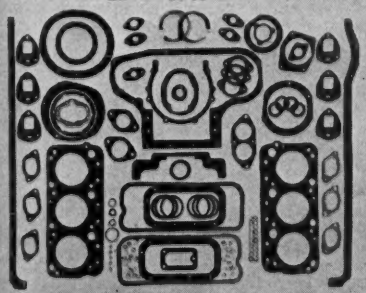

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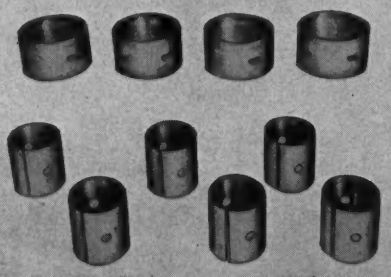

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Petroleum LORE and LINGO

By RICHARD SNEDDON

Controlled Direction

If the boring of slant holes had originated in Boston where the naked truth is the undraped actuality and ducks have broad williams, it could very easily have been called "guided clinometric and deviational subsurface penetration," which is pretty horrible to contemplate. Fortunately for us all, however, the process was first practiced in Texas and became known as controlled directional drilling, which is heavy enough, goodness knows, but is not nearly so frightening. That word "controlled," incidentally, is a most important element of the description because the oil well driller of today is a sharpshooter who aims at a specific underground target sometimes three miles away and guides the bit unerringly to its predetermined objective. Sometimes the target is small and the route decidedly tortuous, but like the aviator flying in the dark, the driller can pursue his course with amazing accuracy by instrument.

Accidental Deviation

The first slant holes were drilled by accident rather than design and when it was discovered that the holes were meandering more than somewhat, the fact was so pregnant with disturbing implications that the whole subject was kept very hush hush for a while, and hole surveyors were distinctly persona non grata. There can be no question that the tendency of the bit to forsake the straight and perpendicular path had developed some quite perplexing problems. The situation probably wasn't too bad in the days of cable tool drilling but when the faster rotary method first became popular, little was known about the factors that influenced the straightness and perpendicularity of the hole, and as a result some weird and totally unexpected deviations took place.

Examples

An operator proclaimed happily that he had just brought in a 200-barrel well. Simultaneously the owner of a nearby 200-barrel producer announced disconsolately that his well had gone dry. The circulating fluid in a drilling project vanished, and a short distance away what had been a flowing well began to spout mud. The late Frank Hill used to tell how he was driving around Signal Hill back in the early twenties when he was much annoyed to have his windshield spattered with rotary mud. He looked about for the cause of the smear and presently spied a drilling bit sticking out through the side of the hill and spinning like crazy. Shortly thereafter it stopped and an overshot came out, grabbed it, and pulled it back in the hole. It is reported, in an early Pennsylvania newspaper, that an operator drilled from the summit of a hill into a brewery vat that was situated at the end of a tunnel in the base and quite a way laterally from the rig. The crew was surprised to bail up a nice, sparkling amber fluid that smelled strongly of hops. They didn't need a chemist to tell them that this was beer. One little sip started them on a sustained series of confirmatory tests, after which it was the boys on the rig who smelled strongly of hops.

Inspiration

Accumulating data spurred the scientifically minded to closer examination of the entire drilling process and in due course the art of hole surveying was born. The methods initially employed were crude and ineffectual but they led to the first important step in the development of controlled directional drilling, the so-called "single shot" that, by means of a compass, a sharp-pointed plumb-bob, a circular chart and a camera, could give an indication of the directional deviation of the hole at any given point. This took its name from the fact that it did actually simply take one survey at a time, which meant that the tools had to be withdrawn from the hole before the shot and run in again afterwards, a tedious procedure, especially if a series of readings were required, and more especially if the drilling project was a deep one. Nonetheless, it was an accurate instrument, and indeed it is still widely used in the industry. Its operation was considerably speeded up and its utility increased when it was later lowered on a wireline inside the drill pipe, which, of course, eliminated the necessity of bringing the tools out of the hole.

How It Works

The "modus operandi" of the single-shot is simple but ingenious. It is contained in a sufficiently long cylinder, equipped with centralizers, so that it will conform to the slant of the well in whatever section it might be placed. When it has been properly positioned, the plumb-bob is dropped on to the circular chart and at the same instant a flash photo of the compass is taken. There thus become available two important data, (1) an indentation on the circular chart, and (2) a photograph of the compass reading at the time the indentation was made. The chart is divided into degrees, so that the position of the indentation reveals the extent to which the well is slanted. The shot of the compass shows the direction of the slant. Originally, of course, all wells were supposed to be straight and I have seen some pretty interesting pole models of subsurface oil reservoirs that were designed on this assumption. After the invention of rational hole surveying instruments, however, the reservoir engineers were obliged to adjust their sights.

Pole Models

The pole model was a clever device and its only fault, indeed, was that it was based on unreliable data. It worked about as follows: On a map of the field under consideration were set in their proper locations perpendicular poles representing the

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wells. These poles were scaled either in some footage increment or in a proportion to the various formations found in the wells. Most important, the top and bottom of the oil sand were marked on each pole, and when all the top markers were joined together by a thread and all the bottom ones were similarly joined, a rough outline of the reservoir was obtained. The more wells there were, the less rough was the definition and the more accurately could be interpolated the total extent of the reservoir. Unfortunately, the survey instruments showed the error of the straight hole assumption and proved that the pole models were distinctly off the beam. I don't know whether or not they are still in use, but they could doubtless be made very accurately now, for the course of the bore holes in modern wells is determined with great precision from beginning to end.

Early Efforts

Referring again to the single shot and other acceptable hole surveying devices, the perfection of these was preceded by many years of experimentation which produced several not too dependable methods of determining angularity only; that is, departure from the perpendicular, but not the direction of the deviation. A bottle of molten wax in a hot-jacketed container, lowered to the requisite level and held there until it had cooled, was one of the earliest devices. When the wax congealed, the angle of its surface was an indication of the slant of the hole. This system was open to many objections, as was its successor, the acid bottle, in which a measure of hydrofluoric acid was held in the bottle at the test level until it had etched its presence on the inside of the glass walls. The tilt of the ellipsoid that constituted the top surface of the liquid showed the angle of the section of bore hole in which the test was made.

Reaching Out

The one shot instruments did something for the driller that could not have been done prior to their development. They gave him a measure of accidental deviation and furnished him an opportunity to get the bit back on the straight and narrow. It is remarkable how competent operators can now maintain perpendicularity. Thousands of wells have been drilled over the past 25 years, some to great depths, without at any time deviating more than one or two degrees from the straight downward course, and a bird's-eye view of holes as deep as 15,000 feet shows that the bit never wandered far enough to reach laterally beyond the perimeter of the derrick floor. How the driller succeeds in bringing the deviating well back to its prescribed path and keeping it there as long as possible is another part of this story. For now, it is enough to understand that when it wishes to, the industry can drill a well 4 miles down with a bore that is straighter than a West Point graduate.

Purposely Crooked

Having really satisfied themselves that what they had fondly thought to be straight holes were anything but, drilling engineers immediately began to look for the causus belli, sometimes referred to as the colored gentleman in the woodpile. I remember about thirty-five years ago finding Cy Rubel, Percy Tallant and several others whose names I've forgotten now operating a miniature drilling outfit at Dominguez. And they weren't just playing themselves. The little machine was drilling into core sections and the operators were making careful observation of every motion and effect in an attempt to determine what makes a drilling bit stray off its projected path. They, and a number of their contemporaries, eventually did find that there were several principal factors responsible for bit wandering, mostly (1) weight on the bit; (2) speed of rotation; (3) character of material being penetrated.

Drill Collars

It was noted by these same engineers that when the drilling string is weighted near the base with a series of extra heavy pipe sections, known as collars, and the whole assembly is held in partial suspension while rotating, the hole remains reasonably straight. On the other hand, when the lighter string without the addition of collars is permitted to exert its full weight on bottom, it is then that the bit really goes for a walk. Having found a means of telling with certainty when the bore had begun to drift of its own accord, the logical next step was to develop such tools and techniques as required to straighten it again. It could be done with some degree of success by a proper balance of the three factors mentioned in the preceding paragraph, but something more positive was sought.

Deflecting Tools

The technicians went into another prolonged period of cerebration from which they emerged with a number of deflecting tools, chief of which were the whipstock and the knuckle joint. It is probable that the former was suggested by the simple fact that a drilling bit tends, like people, to follow the path of least resistance, so that when its path in the hole is obstructed by some difficultly penetrable matter such as another twisted-off bit or section of drill pipe, it veers away from its original course and starts in a new and usually unpredictable direction. According to the legend of the derrick groves, the whipstock, which actually does resemble an old-fashioned whipstock in form, hence the name, was invented by a driller in an effort to drill around an object that had been lost in the hole and couldn't be recovered.

The First Whipstock

What he did was to taper a log and lower it, thick end down, until it rested on the fish (that's the item lost in the hole). Then he slid the bit along the face of the taper and started it out past the side of the fish. By a continuity of such maneuvers, some in reverse, he could actually work completely around the obstacle and eventually come back in line with the original hole. This would naturally have to be done in long, gradual sweeps in order to permit the setting of casing, tubing, etc. Sharp bends in the bore hole are obviously to be avoided for other reasons, too. Pumping around corners is never quite so satisfactory as pumping in a straight line.

Further Development

That was the pattern from which developed today's accurate steel whipstocks, now obtainable for wells of any diameter, and with any desired degree of taper. Needless to say, the art of placing the whipstock with its taper pointing in the right direction is a matter for the experts and they have worked out that problem thoroughly on downhole tools of all descriptions, including whipstocks and knuckle joints. "Orienting," by the way, is the oilman's term for the proper directional place-

ment. In the early stages of well surveying, this business of orientation was quite a problem, but today, as has just been pointed out, it is taken care of in most instances quite simply. In use, the bit is threaded through a ring at the top of the whipstock and when the new hole has been properly started, the whipstock is withdrawn and drilling is continued in the usual manner. The knuckle joint is another form of deflection tool, so hinged that it can drill at a predetermined angle.

Crooked by Design

With the usual perversity of the scientist, no sooner had the oil operator learned how to straighten accidentally crooked holes than he realized that if he could crook them purposely, and as he wanted to, the oil industry could reap a mighty rich harvest. And soon the drilling of directionally controlled wells became a widely practiced and highly profitable technique. Not a technique but a variety of techniques, for there are many. Instrumentation has progressed tremendously. Weight indicators, tachometers (counting bit rotation rate), gauges for mud pressures, and a host of appropriate down-hole devices have helped to add accuracy and precision to directional drilling.

Getting the Slant

Besides the single-shot survey instrument already described, others have been developed, nonphotographic in type, but highly effective. All sorts of continuously recording and logging apparatus keep the driller amazingly informed on what goes on as the drill progresses. Worthy of special mention is a comparatively recent system of jetting that seems to be coming into popular use in areas that feature relatively soft formations. A tri-cone jet bit in which one of the outlets is much larger than the other two, is the principal item in this process. When the string is being rotated in the usual way, the big jet makes no appreciable difference as far as direction is concerned, but when rotation is stopped and the big jet is faced in the desired direction, the heavy mud pressure washes downward and to the side. When enough new hole has been jetted, the bit is turned again. This off-and-on procedure can be carried on as often as is necessary, locking the rotary table when the bit is stationary, until the final predetermined direction of the hole has been achieved.

Details

The jetting system has several quite obvious advantages. It is possible to conduct a whole series of deviation operations without ever coming out of the hole. The same bit can be used to drill straight hole or to kick off in a new direction. The deviation is checked at critical intervals with single-shot surveys. If it is not going right, the bit can be stopped, reoriented, and the route corrected. In the proper environment the entire process is both faster and cheaper than conventional methods, and, of course, the driller can further add to the economical attraction by juggling weight, rotation speed and other influencing factors to accomplish intermediate steps.

While this method is being modified and adapted to achieve the maximum result, the whipstock method is being similarly improved, and the entire process is simply one more indication of the often repeated contention that there can be no rest for the conscientious engineer.

Accomplishment

The wonderful thing about directional drilling is that it has made available to the petroleum industry vast quantities of oil that otherwise would be out of reach. It makes possible, for example, recovery of deposits that lie under populous, built-up areas without disturbing the residents or defacing the landscape. In most such instances, in fact, it brings new income to property owners who otherwise would have little chance of realizing such income by their own initiative. Hundreds of wells have been drilled along the ocean front at Huntington Beach to tap subsurface reservoirs lying far out to sea, and these have produced millions of barrels of oil over the past 20 years. Although the drilling of directional wells per se is more expensive than the drilling of straight holes, it is in the long run a money-saving device because it has enabled the sinking of many wells from a single site. The Monterey Island at Seal Beach is the starting point for about 35 producing wells and many more are projected from this same tiny island.

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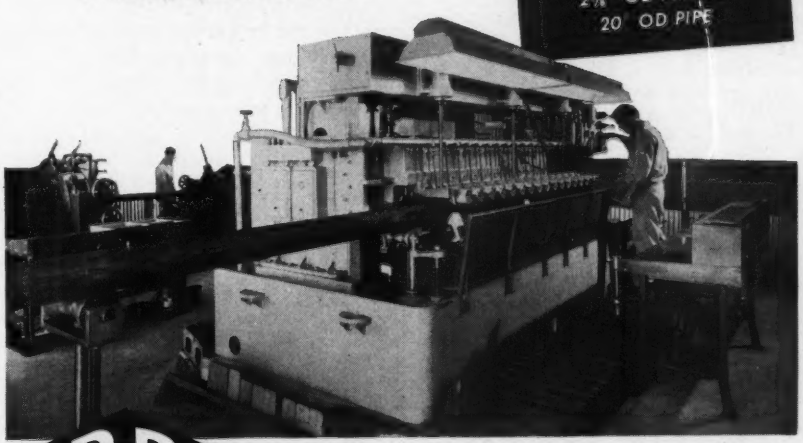

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Other Uses

Everyone in California is familiar with the Ventura Avenue field on which multiple producers are completed from shelves in a particularly hilly terrain. If this were not possible, it would be necessary to build expensive roadways into each location and also construct additional foundations. What goes on in California, of course, is taking place in other oil fields all over the country. Wells are being directionally drilled in the swamps of Louisiana, and offshore in the Gulf of Mexico region that without the current deviation techniques would remain undiscovered. The system is employed successfully to tap oil domes which present considerable difficulty when straight holes are considered. Many domes are mushroom-shaped, with the oil-producing formation lying under the lip. Salt is to be avoided because it affects the drilling mud and corrodes equipment, so the wells are directionally drilled around the lip. Geologists in recent times have been discovering more and more small stratigraphic traps that can be reached only by devious routes and have consequently remained undisturbed awaiting the development of the controlled directional drilling techniques. There is indeed no end to the applications for this interesting process. It is used for relieving the pressure on wild wells or well fires, and is now becoming more and more adapted to industries other than oil, such as mining and construction. The crooked hole has definitely blossomed from an accident to an art and has benefited the industry and the country to an extent that would be very difficult to estimate.

Grant Oil Tool Appoints Three Foreign Representatives

Grant Oil Tool Company has appointed three prominent drilling equipment sales and service firms to represent the company in French, Middle Eastern and Argentinian oil fields, it has been announced by A. H. Salvatori, Grant vice president.

S. N. Marep of Paris will represent Grant in France, North Africa and the Franc area countries. Macridge Petroleum Equipment Supply Company of Beirut will sell and service Grant tools in Lebanon and the Middle East. Argentine representative is Drillex of Buenos Aires.

Foreign Operations — Standard Oil Co. of Calif.

(Continued from Page 4)

Despite increasing competition and a somewhat unstable market, this company enjoyed a very successful year.

Eastern Canada Companies Jointly Owned With the Irving Interests

During 1960, Irving Oil Company Limited continued to expand its marketing facilities and develop new outlets for its products in Eastern Canada. This continuing activity has resulted in a gain in sales volume of more than 20% (as of November 30, 1960) over 1959.

The $50 million Irving Refinery in Saint John, New Brunswick, went on stream in April, 1960, and is now producing a full line of first-quality products for the Eastern Canadian market. The 45,000 BPD refinery, biggest ever built in Canada as one unit, was formally dedicated in July, 1960, and is a significant development in the expanding economy of the Maritimes.

Standard Oil Company of British Columbia (Western Canada)

Manufacturing: Crude run for the year 1960 was up 5% from 1959.

The capacity of the colloid mill was doubled in order to meet increased sales of cationic bitumuls. The addition to the warehouse, which was started in 1959, was completed in early 1960.

Due to increased efficiency and reduction in capital expenditures, it has been necessary to make a substantial reduction in the labor force.

An improvement in the blending of gasolines was introduced in 1960 by the addition of tetramethyl lead to both Chevron and Chevron Supreme gasolines.

Marketing: Total sales showed a gain of approximately 7% over 1959, increases occurring in all major products except locally manufactured fuel oil. Company share of the market in light products has remained relatively constant.

Depressed realizations at the wholesale and retail levels have been a problem throughout the entire year. Depressed retail prices have spread from the Vancouver area to the entire lower mainland area.

In the latter part of the year a three-year contract for supply of kerosene-type aviation turbine fuel to Canadian Pacific Airlines was secured.

The Oil Heating Equipment Plan proceeded satisfactorily, loans during the first fiscal year showing a substantial increase over estimated requirements.

FINANCIAL

Income Tax: There were no changes in corporate income tax rates or Federal sales tax rates during the year.

Cash Position: Cash generated from operations, after providing for capital expenditures, was applied to long-term debt.

Profits: Profits showed a moderate increase from 1959. Contributing factors were increased sales volumes, an increased dividend by Trans Mountain Oil.

CALIFORNIA SHIPPING COMPANY

Several new trades were added to the company's functions because of new refineries and crude sources. During March, the first cargo of crude oil was delivered to the Irving Refinery at Saint John, New Brunswick, from Bendar Mashur, Iran, over 8,000 miles away. The first delivery of crude oil was made in September to the Hawaiian Refinery after a 6,000-mile haul from Sumatra. In addition, the company moved to Richmond, in November, the first shipment of Swanson River Crude from Nikiski, Alaska.

To meet this demand for tonnage, California Shipping Company operated a seagoing fleet of 28 company-owned tankers, 18 tankers under long-term charter, and numerous other vessels acquired as needed under spot charters.

Four company-owned, 28,000-deadweight-ton tankers which were laid up in 1959 were returned to service in 1960. In addition, the SS "T. L. Lenzen," with a capacity of 319,000 barrels, and the SS "George L. Parkhurst," with a capacity of 586,000 barrels, were added to the owned fleet this year. Both vessels are named for company vice presidents and directors. These are the second and third vessels to be delivered under the company's long-range shipbuilding program which will add seven more tankers by 1965 and improve the long-range effectiveness of the fleet.

Tidewater Buys Half Interest in East Coyote Capital Co. Holdings

Tidewater Oil Company announces it has purchased 50 per cent interest in several production properties of Capital Company of Los Angeles, a wholly owned subsidiary of Trans-America Corporation.

The Capital holdings include 33 wells in the East Coyote (Orange County) and Signal Hill Fields with a total production of about 500 barrels per day.

T. S. Minney, vice president of Capital Company in charge of the Oil and Gas Division, said that "Tidewater, because of its operating personnel and knowledge of the fields, will become the operator."

"The operation of the leases by Tidewater will increase production and assure Capital Company a firm market for its share of the production," Minney said.

Mobil Oil Co. Increases Expenditures in 1961

Socony Mobil Oil Company, Inc., announced on April 4 that it plans an increase of nearly 10 per cent in capital and exploration expenditures for 1961 over 1960. According to president A. L. Nickerson, expenditures this year are expected to reach $350 million, compared with outlays of $320 million during 1960.

Just over half of the 1961 expenditures will go into world-wide exploration and producing activities, in order to increase Socony Mobil's reserves of oil and gas and to boost the efficiency of fields already discovered. One item in this category is the drilling of development wells in the Gulf of Mexico, where important discoveries have been made on acreage Mobil Oil Company purchased for nearly $24 million in February, 1960.

More than a fifth of the total is to be spent on U. S. and overseas marketing facilities, chiefly retail outlets.

Nearly a fifth is to be used for new and improved manufacturing facilities, including those for refining and for Mobil Chemical Company.

On a geographical basis, nearly three-fifths of the expenditures will be made in the United States and Canada. The rest is to be spent in other areas of the free world.

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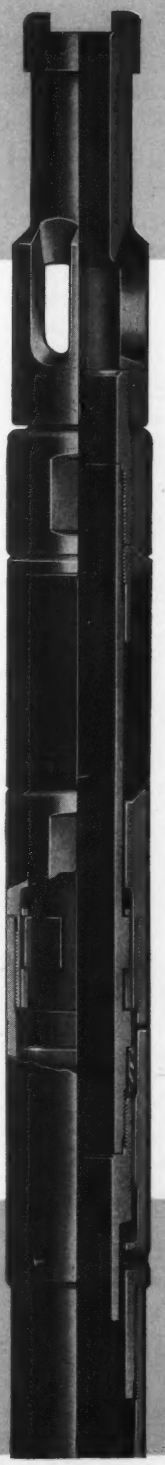

A stationary barrel bottom anchored pump **CAN** be run safely in sandy wells . . . when coupled with an **OILMASTER Automatic Top Seal.** The Top Seal eliminates the hazard of stripping jobs by effectively sealing the annulus between the pump and tubing. It also reduces pull rod wear by stabilizing and centering the top of the pump.

OILMASTER's Top Seal is fully automatic . . . it requires no special actuation to set or pull. When the pump is seated, the weight of the rods expands the rubber against the tubing, sealing out sand and foreign material. When the pump is pulled, large ports allow fluid to drain rapidly past the Top Seal and the controlled expansion rubber is pulled intact with the pump.

Ask your **OILMASTER** or **National Supply** representative to demonstrate the advantages and economies of the **Automatic Top Seal,** or contact these co-distributors: **Beacon Supply Company, Dominion Oilfields Supply Company, Limited, Industrial Supply Company, Union Supply Company. For literature write to FLUID PACKED PUMP, 9100 S. Norwalk Blvd., Los Nietos, Calif., and ask for Bulletin 6101.**

Large ports insure rapid fluid by-pass.

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National Supply Division

Annual Meeting of A.S.M.E. In Los Angeles June 11-15

The Summer Annual Meeting of A.S.M.E., scheduled for June 11th to 15th in Los Angeles, California, at the Statler-Hilton Hotel, will be well supported by the Fuels Division papers, having excellent promise of great interest.

Rex T. Ellington of the Institute of Gas Technology provides a paper entitled "Porous Media Combustion."

E. R. Gardner of the Ohio Valley Gas Company speaks on "Natural Gas Fuel Application in the Steel Industry."

Larry Selwitz of New Products Laboratories, Westinghouse, discusses "Design of an Interchangeable Gas or Liquid Fuel Fired Burner System for Thermostatic Generation."

A two-author paper by R. J. Heinsohn and J. E. Lay of Michigan State University covers "Flame Stabilization in a Boundary Layer Over a Cooled Surface."

Cecil Henne from the City Public Service Board of San Antonio will discuss "Burner Controls on Existing Boilers."

The locale of the meeting in an area where liquid and gaseous fuels have had traditional preference is an excellent choice for presentation of the type of papers listed.

Marvin L. Crull of Forney Engineering Company of Dallas, Texas, is the reporting representative for Fuels Division at this meeting and has obviously arranged an excellent program.

J. B. "Jim" Walker of Babcock & Wilcox in Barberton, Ohio, as program coordinator, and Mel Jones of DuPont in Wilmington, Delaware, as program committee chairman, have all Fuels Division programs well organized to provide outstanding interest on the subject of fuels in 1961.

Dubin Guest Speaker At Los Angeles D. & D. Club

Wilbert B. Dubin of the Tidewater Oil Company in Los Angeles was guest speaker at the monthly dinner meeting of the Desk and Derrick Club on April 12 at the Domino Club. "Gasoline Today—And Its Future" was the subject of his talk.

Dubin, now Tidewater's division marketing manager (Western Division), served with the Department of State and various offices of American Consulates General in Germany prior to joining Tidewater in 1956.

Pacific Coast A.P.I. Meeting To Be Held May 11th and 12th

Final arrangements for the 34th Annual Spring Meeting of the American Petroleum Institute, Pacific Coast District, to be held Thursday and Friday, May 11 and 12, at the Los Angeles Biltmore, are now being completed, according to J. B. Hundley, Jr., chief development engineer of Richfield Oil Corporation, general chairman of the meeting.

J. B. Hundley, Jr.

Latest developments in local formation fracturing techniques, offshore platform design, water flooding, high volume lifting methods and many other topics of vital interest to oil men will be discussed during the drilling and production technical sessions. Regular committee meetings and two prominent guest speakers round out an outstanding program.

Serving as committee heads for the meeting are W. G. Christensen, Mobil Oil, drilling sessions chairman; R. G. Crippen, Texaco Inc., production sessions chairman; E. E. Embury, Guiberson Corp., general arrangements chairman. Vice chairmen of the general arrangements committee are E. L. Hughes, BJ Service, ticket sales; E. E. Cater, Cook Testing, finance; J. C. "Bud" Russell, Republic Supply, assisted by J. R. B. Freeman, New England Valve, hotel arrangements; J. M. Rider, Western Oil & Refining, publications; and D. L. Sewell, Baker Oil Tools, Inc., publicity.

Rehearing on Gas Contracts Asked by I.P.A.A.

A rehearing on a Federal Power Commission order issued March 3, which would outlaw all types of indefinite pricing clauses in contracts between producers of natural gas and the buyer, has been requested by independent natural gas producers. The rehearing application has been submitted by L. Dan Jones, counsel for the Independent Petroleum Association of America.

The request, relating to FPC's Order No. 232, contends that the Commission exceeded its power in outlawing indefinite pricing clauses in gas sales contracts because the order would restrict and limit the freedom of contract by private parties, whereas under the Natural Gas Act the Commission has no such authority.

The Commission, in this instance, the IPAA argues, is "devoid of authority to act as proposed and the order is in clear conflict with the Natural Gas Act."

Collier Awarded National Safety Trophy

The Brea (California) plant of Collier Carbon and Chemical Corporation was awarded a "Sweepstakes Trophy" by the National Safety Council for having the finest safety program and one of the lowest accident rates of 668 western manufacturing plants of comparable size.

Announcement of the honor was made at the annual banquet at the Ambassador Hotel in Los Angeles, March 30th. J. W. Buddenberg, superintendent of Collier's Brea plant, accepted the trophy for the company.

It grows almost like Jack's beanstalk

To him, it's amazing. To teeming millions in crowded areas of the world, it's a new source of hope —of better food, a richer life.

For in food crops, astonishing *new* growth is being released by the green thumb of science.

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Gulf Oil Scientists Develop New Method to Map Offshore Subsurface Layers

In a scientific breakthrough of particular significance to the oil industry, Gulf Oil Corporation has developed a technique which for the first time will permit accurate seismographic studies of certain offshore areas which thus far have resisted all attempts at such subsurface analysis.

Key to the system is a unique new type of electronic filter designed and built by Gulf Research and Development Company, Gulf's research subsidiary.

Accurate seismographic study of offshore areas has proved to be virtually impossible where the ocean floor is either excessively hard or soft. This is caused by the fact that in comparison with their speed through water, seismic shock waves travel much faster in hard rock bottoms and much slower in soft bottoms. This means that when the waves strike such surfaces, the rapid change in their velocity causes much of the wave energy to be bounced back, rather than transmitted on down into the earth's crust to reflect from geological formations which can indicate oil traps.

In such instances, the useful "echoes" from subsurface structures following the detonation of a seismic charge are "jammed" by waves which bounce back and forth in the water itself, reflecting alternately from the bottom and the surface. This interference, or "singing," shows up on seismic records as smooth, undulating waves which blot out the sharper reflection traces that normally would delineate the subsurface layers. This can be compared roughly to recurring echoes in a large hall drowning out a speaker's voice.

The problem of removing this singing so that the true reflected waves could be read unimpeded became a top-priority problem for scientists at Gulf's main technical center at Harmarville, Pa.

With the help of the laboratory's IBM 704 computer, Gulf's research specialists were able to test out theoretical answers to the problem in record time.

On the basis of the computer tests, complex, unique electronic filters were designed which could effectively suppress the interfering reverberations and allow the desired signals from subsurface layers to be recorded and recognized.

With the singing overcome, Gulf geological crews for the first time were able to map extensive areas of Lake Maracaibo, Venezuela, which had previously defied seismic exploration because of the soft, mucky bottom. Likewise helped were seismic crews operating off the coast of Florida, where an excessively hard ocean floor had hampered exploration efforts. Gulf's oil seekers finally were able to receive good readings on their magnetic tapes. In many marginal areas, moreover, more accurate records were secured through subsequent filtering of seismic tapes at Harmarville.

Signal's First-Quarter Net to Rise

R. H. Green, president of Signal Oil and Gas Company, reported record high 1960 sales for the 39-year-old company and predicted that first-quarter income for 1961 would substantially exceed the $3,300,000 earned in 1960.

Speaking before the Oil Analysts Group of New York, Mr. Green revealed that 1960 sales totaled $305,559,000, compared to $194,245,000 for the previous year, an increase of 57%. Net income in 1960 was $16,509,000, or $1.67 a share, compared to $16,257,000, or $1.64 per share, for 1959.

Green told the analysts that the company's principal efforts in 1961 will be directed towards acquisition of additional crude oil and natural gas reserves. As a part of the program, exploratory wells will be drilled in California, Louisiana and Lake Maracaibo, Venezuela.

"In the short period of two years, Signal has progressed from being principally an oil producer to a fully integrated oil company with a refining capacity of 80,000 barrels a day and retail marketing outlets in 15 states," he stated.

Signal's net proven reserves are estimated to be 590 million barrels of crude oil and 194 billion cubic feet of gas. Combined proven and potential crude oil reserves are estimated to be 969 million barrels.

Scientific Breakthrough In Cutting Oils And Chemical Coolants

Research conducted by Meta-Chemical Co., Inc., has brought forth a new and greatly improved line of chemical coolants, cutting oils and cutting oil additivies, regarded as a scientific breakthrough in the field of metal cutting technology.

Since completion of research by Meta-Chemical these products have been subjected to two years of intensive field testing on all types of metals in actual plant operations and have been providing remarkable performance and efficiency figures in the machining of the general run of materials as well as the relatively new "exotic" and difficult-to-machine metals and alloys.

The ability of these products to perform with outstanding results and general over-all economies in the areas of increased tool life, improved metal finishes, higher production rates and greater dimensional accuracy reducing rejects have been fully established through constant usage in many local Southern California plants.

These products now being ready for broad-scale marketing, Meta-Chemical has entered into a long-term contract granting Logan Engineering exclusive domestic and foreign marketing rights for the products in concentrate and finished forms.

Logan Engineering has organized a corporation to be known as Meta-Tech, Inc., to conduct the marketing operations. Meta-Tech headquarters have been established at 1718 North Chico Avenue, South El Monte, California, the location of Logan Engineering's recently acquired research laboratory. Dick R. Linch, managing general partner of Logan, will serve as president of Meta-Tech, Inc., and George J. Murray, Jr., former Tidewater Oil Company executive, has been named vice president. Directors of Meta-Tech, Inc., are H. C. Bender of Hi Bender Company and former president of Owl Drug Company, Bruce Buchanan, Beverly Hills attorney, Linch, Murray, and Miles F. Thomas, vice president of Amercon Corporation.

Summary of District V Oil Industry Conditions January (and February Preliminary) 1961

By OIL PRODUCERS AGENCY OF CALIFORNIA

Highlights

Demand for all of the principal products — gasoline, distillates, and residual fuel—declined during January as compared with December, while total supply increased somewhat, with the result that there was a slight increase in total stocks.

In general, the U. S. Bureau of Mines report for January shows that total supply-demand relationships for the month were practically in balance, with total stocks increasing 24,000 b/d.

Total Supply, Demand, and Stocks

Weekly figures for February indicate that total supply was 1,314,000 b/d, demand was 1,407,000 b/d, and stocks decreased 93,000 b/d. This decrease, 2,604,000 barrels for the month, would bring stocks to 113,351,000 barrels on February 28, compared with 122,597,000 on February 29, 1960. The year's decrease was 9,246,000 barrels.

Crude Production, Imports, and Stocks

According to reports of the Oil Import Administrator, 348,919 b/d of crude and unfinished oils, including 60,391 b/d of exempt Canadian, were imported during January. In addition, 7,712 b/d of products were imported. In December, crude and unfinished oils imports were 315,591 b/d, plus 12,770 b/d of products.

Preliminary figures for February indicate that crude production was 833,000 b/d, imports were 216,000 b/d, and stocks increased 16,000 b/d. This increase, 448,000 barrels for the month, would bring crude stocks to 32,610,000 barrels on February 28, compared with 34,545,000 on February 29, 1960. The year's decrease was 1,935,000 barrels.

Gasoline Supply, Demand, and Stocks

Weekly figures for February indicate that gasoline supply was 574,000 b/d, demand was 589,000 b/d, and stocks dropped 15,000 b/d. This decrease, 420,000 barrels for the month, would bring gasoline stocks to 32,330,000 barrels on February 28, compared with 34,479,000 on February 29, 1960. The year's decrease was 2,149,000 barrels.

Distillate Fuel Supply, Demand, and Stocks

Preliminary figures for February indicate that distillate supply was 211,000 b/d, demand was 193,000 b/d, and stocks increased 18,000 b/d. This increase, 504,000 barrels for the month, would bring stocks to 15,516,000 barrels on February 28, compared with 12,766,000 on February 29, 1960. The year's increase was 2,750,000 barrels.

Residual Fuel Supply, Demand, and Stocks

Preliminary figures for February indicate that residual fuel supply was 318,000 b/d, demand was 321,000 b/d, and stocks decreased 3,000 b/d. This drop, 84,000 barrels for the month, would bring residual stocks to 13,461,000 barrels on February 28, compared with 16,665,000 on February 29, 1960. The year's decrease was 3,204,000 barrels.

Natural Gas Supply, Consumption

In January, 2,461,000 mcf of gas was brought into California and 1,667,000 was made available to the utility companies by California producers. The total, 4,128,000 mcf, was the January rate of consumption.

Tidewater Pres. G. F. Getty II Talks to San Francisco Security Analysts

As a result of an intensive six-year rebuilding program, Tidewater Oil Company's growth has outpaced that of the American oil industry, Tidewater president George F. Getty II told the Security Analysts of San Francisco recently.

More than $870 million in capital expenditures spent by Tidewater since 1954 have developed a plant, facilities, and organization which places the 83-year-old integrated oil company in a completely new competitive position.

Tidewater's development has exceeded that of the oil industry in four key categories, during the modernization and expansion program, Getty stated.

Its oil reserves gained 25 per cent compared with industry gain of 10 per cent.

Its gas reserves gained 61 per cent versus industry gain of 24 per cent.

Its natural gas sales went up 53 per cent compared with industry increase of 32 per cent.

Its gasoline sales increased 29 per cent against industry sales growth of 20 per cent.

Tidewater is putting major emphasis on exploitation of its known reserves of oil and gas, instituting new engineering practices to get greater quantities of petroleum from each field.

As an example, Getty pointed out Tidewater's California production has increased 22 per cent since 1958, while total industry production in the state has declined 3 per cent.

Westates Expands Activities

Westates Petroleum announces that it has acquired in excess of 200,000 acres of a gas reservation in Alberta, Canada, as part of a program to expand the scope of its Canadian operations. Development of these reserves is expected to begin in the near future to meet the rapidly expanding demand for gas both in the United States and Canada.

Westates also announced that it was the successful bidder on 320 acres of Crown leases in the Alida and Nottingham Fields area of Saskatchewan. The company anticipates that drilling operations will start in the latter region during the first half of this year. Present production in these fields is in formations of Mississippian Age and averages 35 gravity oil.

Lampkin Lab Purchased By Oilwell Research, Inc.

Charles C. Wright, president of Oilwell Research, Inc., 1539 West 16th Street, Long Beach, announces the acquisition of Lampkin Laboratory of Bakersfield.

Both companies are specialists in drilling and production problems, core analysis, corrosion and water testing.

The Bakersfield branch will continue under the direction of Robert E. Lampkin, who recently resigned from his position as vice president and general manager of Petroleum Technologists, Inc., to start the new venture. The Bakersfield laboratory is located at 4101 Pierce Road, telephone FAirview 5-7903.

PIPE

The Orange Bands of Youngstown mark the world's most complete line of Oil Country Tubular Goods

Take a mountain side. An offshore rig. Or a far out desert site. Take a tough, deep hole. A multiple completion. Or a sandy well. Wherever oil is, bring it in better with Youngstown Orange Band pipe. Bring it in more profitably with Youngstown . . . the world's most complete line of Oil Country Tubular Goods. You get exactly the pipe you need to meet any situation and every condition.

Select Youngstown drill pipe in standard or lightweights . . . 8 sizes, standard or premium grades . . . compatible with all tool joints. Order Orange Band casing in the widest range of sizes and grades. A.P.I. and Buttress T&C or Speedtite and Extreme Line integral joints. Specify Youngstown tubing from a complete line of sizes, grades, end finishes in A.P.I. or special non-A.P.I. upsets.

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For details on Youngstown Orange Band tubular goods, write: Dept. 2-B,
The Youngstown Sheet and Tube Company, Youngstown, Ohio

Equipment

Globe ST-3 Rock Bits

Globe Oil Tools Announces A New Line of Rock Bits

Globe Oil Tools Company has placed on the market its new line of ST-3 Rock Bits, which are designed to meet the demand of the current trends for drilling straighter holes. The manufacturer claims that harder formations than normally used can be drilled with a coarser tooth, thereby speeding drilling rate of formation. And that the ST-3 maintains a straight hole when going through streaks interspersed with soft formation.

Globe ST-3 Rock Bits are available in both regular and jet types.

Pacific Perforating Introduces New Chemical Pump

Pacific Perforating Co. Inc., Torrance, California, manufacturer of the well known Pacific Gravel Pack Liners, has recently introduced a new Chemical Pump for use in pumping wells with corrosion, scale or wax conditions.

The new Pacific pump will deliver 5 to 150 gallons daily into the casing head or flow line. Once the pump is set, the flow of treatment solution is constant.

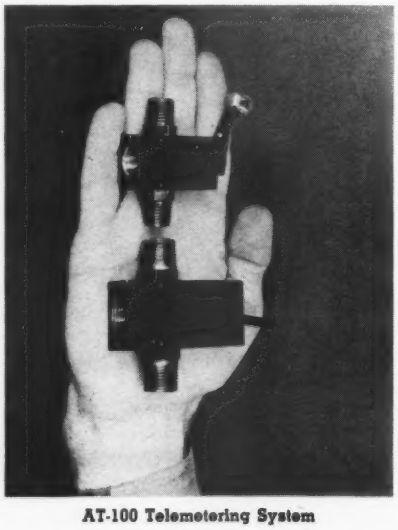
The pump is precision built to high pressure hydraulic standards and will safely withstand working pressures to 1000 psi. For complete detailed information, write the manufacturer, Pacific Perforating Co. Inc., 1024 Engracia Avenue, P.O. Box 144, Torrance, California.

New Alarm Telemetering System

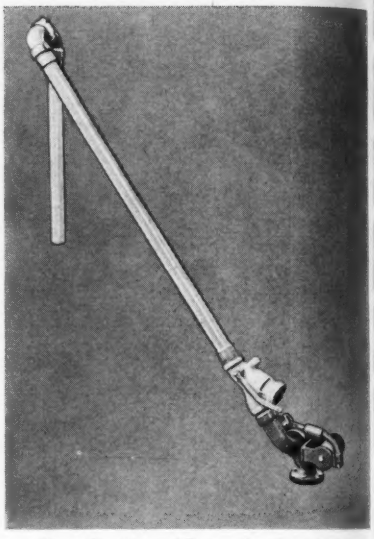
This system is primarily intended for the transmission of alarm signals from one point to another, widely separated from each other. The AT-100 will continuously monitor up to 50 alarm switches and telemeter their position to a receiver panel located up to 20 miles away.

This system is ideally suited to telemetering data from LACT installations, off-shore platforms, pumping stations, etc., to a central facility. Typical data which may be telemetered is high or low pressure, temperature, level, pump on or off, or any other action which may be indicated by a switch closure.

For additional information write to Instruments, Inc., P.O. Box 556, Tulsa, Oklahoma.



AT-100 Telemetering System



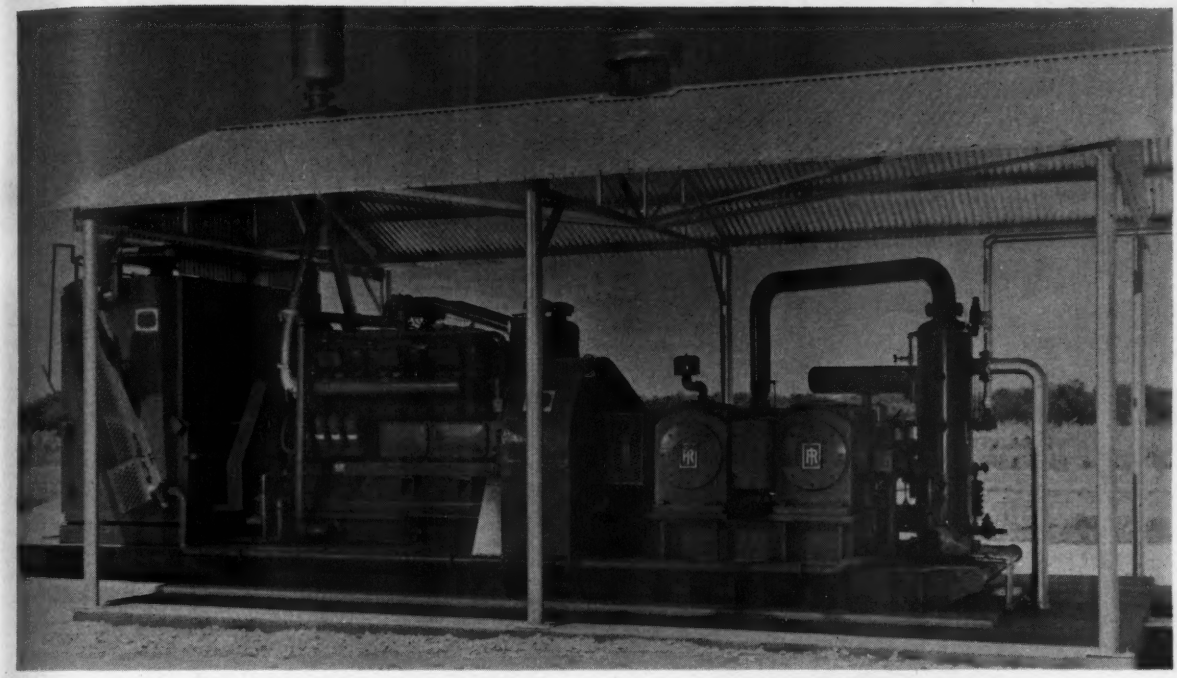
New Continental-Emsco Loading Arm

Continental-Emsco Announces New Loading Arm

Continental-Emsco Company has announced its new spring-balanced loading arm designed to withstand heavy usage and rough treatment. An outstanding feature of the loading arm is an exclusive steel riser joint. This new design in riser joints incorporates widely spaced heavy-duty bearings enabling the arm to take a larger load and give longer bearing life.

Heavy-duty packing elements is another feature of the Continental-Emsco loading arm. They are available in various types of materials to handle a wide range of fluids. The packing can be replaced without removing the arm from the rack or disturbing bearings. Also included is an exclusively engineered snubber spring that absorbs the upward thrust when arm is returning to its rest position.

The arm is used in loading tank trucks and cars with petroleum or chemical products. Six standard models are available in either 3" or 4" sizes. Arms can be custom designed to fit any installation.



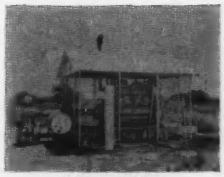
200 H.P. Caterpillar engine, driving compressor, boosts well head pressure from 300 psi to 900 psi for gas pipeline distribution.

these SECO leased "CATS"®

work for "PEANUTS" on all power requirements!

GAS COMPRESSION

- PUMPING • DRILLING
- WATER WELLS • WATER FLOOD
- GAS COMPRESSION
- PIPE LINE PUMPING • COTTON GINS
- FIELD GENERATORS



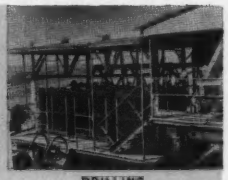
WATER WELLS

NO CAPITAL INVESTMENT, NO INSTALLATION COST, NO MAINTENANCE

No power matches the economy of SECO LONG-RUN GAS ENGINES! You use the fuel right under your feet, part of your everyday production. Or run these engines from any gas distribution pipeline.

COTTON GINS

FIELD GENERATORS



DRILLING

Total expense, including *monthly leasing fee, installation, and complete maintenance,* costs only 5 to 8 mils per HP/hr!—*40% cheaper than your present electric bill!* Further, you save the investment in capital equipment and eliminate all need for maintenance crews and equipment attention. SECO furnishes this service as part of its lease agreement.

OUTRIGHT PURCHASE—If you prefer to own your engines outright, power costs drop to 4 to 6 mils per HP/hr.; 50% cheaper than electricity!

WHATEVER YOUR POWER NEEDS—Call SECO for full data on gas engine leasing or purchase. Handy SECO offices in principal oil producing areas insure efficient installation service and regular maintenance with trained crews. *Here is a proven way to cut operating costs with complete dependability plus many other advantages!*

Heavy-duty "CAT"® gas engines can be supplied on lease or purchase in power ranges from 150 to 500 H.P. for any application requirement. SECO also supplies M-M gas engines from 10 H.P. to 100 H.P. continuous.

PIPE LINE PUMPING

Write for cost comparison data showing savings of SECO engines vs. your present power system!

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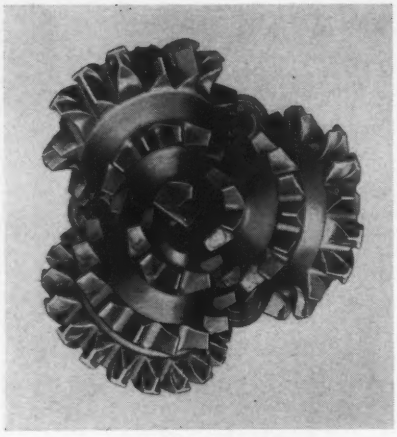


Globe MT-3 Rock Bits

Globe Oil Tools Announces A New Line of "M" Type Bits for Harder Formations

Globe Oil Tools Company has placed on the market its new line of MT-3 Rock Bits, which are designed to extend the usefulness of the "M" Bit by digging formations faster. Where the "M" Bit would normally show excessive gauge wear in harder formations, the MT-3 retains its gauge while maintaining a high rate of penetration.

Globe MT-3 Rock Bits are available in both regular and jet types.

Jorgensen Offers New 16-Page Maintenance Booklet

A new 16-page picture booklet, presenting helpful facts about making maintenance and repair parts, has just been made available by Earle M. Jorgensen Company.

The booklet, entitled "One Way to Make Your Job a Little Easier," will be of particular interest to maintenance executives, engineers and other key maintenance personnel. The new booklet offers solutions for those persons faced with the problem of getting machinery repaired and back into production fast . . . and at minimum cost.

Presented in graphic photo-caption format, the booklet requires only six minutes reading time. It offers ideas on how to save time in machining parts, eliminate heat treating, quench cracks and last-minute parts rejections. It also offers suggestions for avoiding secondary operations such as cleaning, straightening, finish grinding, and inspections . . . which will help get equipment back into operation in hours rather than days.

Free copies may be obtained by writing or calling Earle M. Jorgensen Company at Box 2358, Los Angeles 54, LOrain 7-1122, or from any Jorgensen service center.

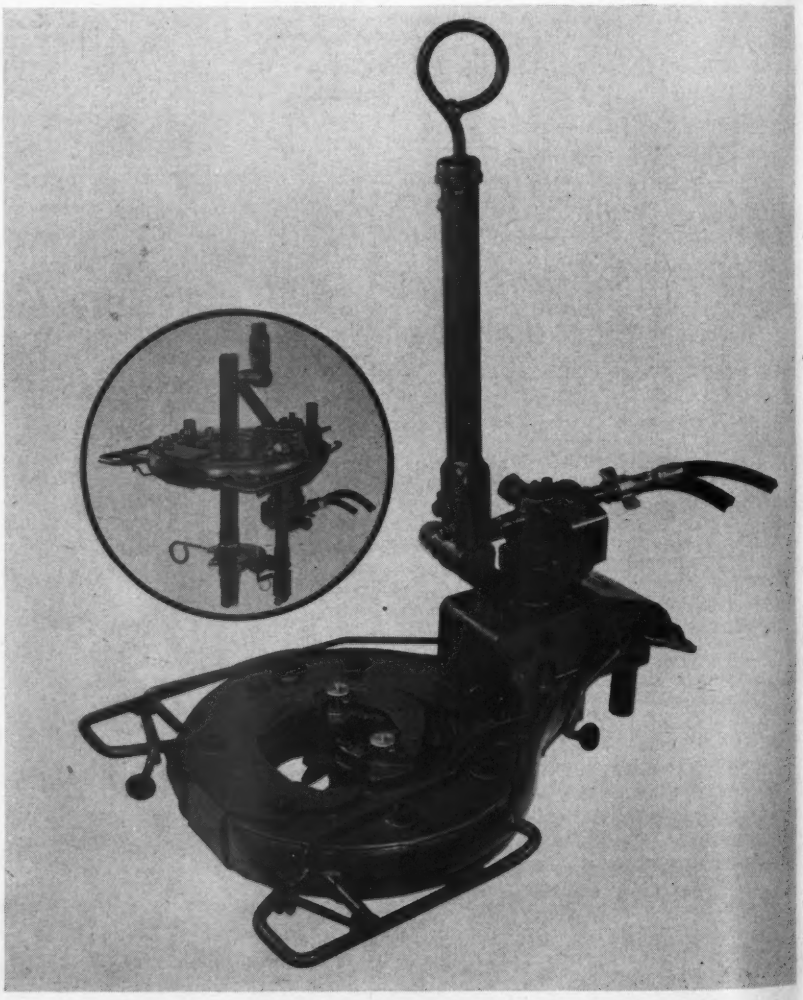
Hillman-Kelley Develops New Tubing Tong

A new compact hydraulic power tubing tong with front-end controls has just been introduced by Hillman-Kelley. This new product, the Hillman-Kelley Model 4600-H, is 42" long and 29" wide and is reported by the company as the most compact hydraulic power tubing tong presently in operation. The tong is especially designed to give more speed and efficiency for today's modern well servicing operations.

Additional features include front-end controls, which cut operating time; a new rugged planetary type gear box; a new sturdier special bronze drag shoe that gives longer wear; snap-out stainless steel jaw pins which are easily released by pressing a center button; simple, fast jaw change-over that fits the tong to various tubing sizes; a jaw design that ratios the gripping action to the torque applied, thus preventing crushing of tubing; and unit construction of the hydraulic motor and throttle valve which eliminates cumbersome piping, hoses and fittings and simplifies maintenance.

The tong is available to handle tubing from 1.050" O.D. through 4½" O.D.

An optional Back-Up accessory (shown in picture insert below) is available for use on both the coupling and on the pipe. This back-up enables all back-up operations to be performed by the tong operator without assistance.



Hillman Kelley new compact hydraulic power tubing tong, Model 4600-H.

New Magnetic Tape Plotting System to Aid Geophysical Exploration

The new Model 570 magnetic tape plotting system produces an X-Y plot of digital data on a special recorder to plot seismic events, resolved strike dips and other computer outputs. Its completely digital operation eliminates analog conversions or servos and the problems of drift and dynamic response. The equipment is compatible with most digital computers.

Operations are flexible in that plots may be superimposed on work done at a previous date; functions may be distinguished by color with a 15-second change of recording pens; and functions may be plotted beginning at the end of previous plotting (such as continuous time functions, sales forecasts, shop scheduling, etc.).

Plotting is automatic with zero positioning, scale factor adjustments, curve and symbol identification all controlled by the computer programmer. Recorder charts or graphs are reproducible by transmitted light processes (Ozalid). Ball point or liquid ink pens are optional. Although continuous curve plotting is done at the rate of 2 ips with no restrictions on curve shape, 30 seconds' plotting can be recorded by the computer in one second.

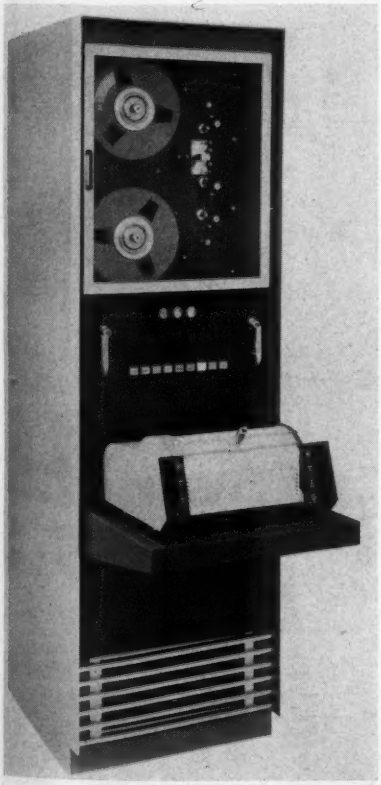
Point plotting is accomplished at 175 points/minute with arbitrary symbol choices. All types of symbols or characters from 1/10-in. on up may be recorded.

Push-button controls on the front panel are: Power, Fast Forward, Rewind, Stop, Search, Single Plot, and Multiple Plot. The user has only to select the desired curve by the automatic search feature (30 ips) and then start plotting by pushing the Single Plot or Multiple Plot button.

The tape transport will read magnetic tapes having a linear density of 200 bits/inch as prepared on IBM Type 727, 729 or similar tape units.

The auxiliary Model 560R digital X-Y recorder uses a bi-directional rotary step motor on both the X- and Y-axis drives, with each step causing the drum or pen to move 1/100-in. in a positive or negative direction. It will accommodate paper rolls 12 inches wide by 120 feet long. The pen is raised or lowered on command at a rate up to 10 operations/second .

All circuitry of the system is solid state to increase reliability and minimize maintenance. For further information, write or call California Computer Products, Inc., 8714 Cleta Street, Downey, Calif.; telephone SPruce 3-4921.

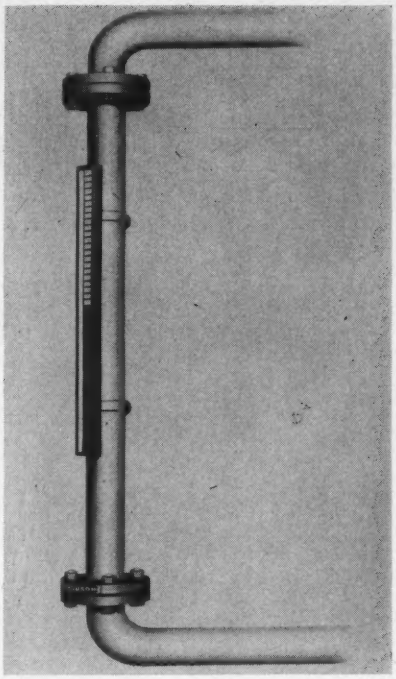


Model 570 magnetic tape plotting system.

Jerguson Magnetic Liquid Level Gages Lock Hazards In Solid-Wall Chamber

Jerguson Gage & Valve Company announces that Magnetic Liquid Level Gages are now available in four models, for any liquid level range, to meet a wide variety of applications.

Magnetic Gages feature a unique safety design which gives absolute protection when dealing with problem liquids, toxic gases and corrosion. They give accurate level or interface readings, yet the dangers inherent in glass, its gaskets and threaded connections are eliminated, for the hazards are locked in a solid-wall, stainless steel chamber.



Jerguson Magnetic Gages are available in four models. Model #1 shown. Manufacturer: Jerguson Gage & Valve Company, Burlington, Massachusetts.

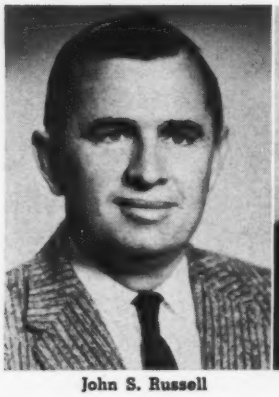
The measuring device is inside the stainless steel or other nonmagnetic chamber. The indicating scale is mounted outside the chamber and is magnetically actuated through the chamber wall. The level indicator consists of edge- magnetized wafers which rotate. As the liquid level changes, an accurate level reading is shown as a red column contrasted with silver above.

Magnetic Gages are for liquid level or interface service, and they will handle any liquid, whether dirty or clean. Typical media handled include many hydrocarbons, including lube oil, ethyl mercaptan, etc.; alcohol; ammonia; hydrofluoric, sulphuric and other acids; liquid nitrogen; caustic soda; high-pressure feed water; and many others.

Pressures range from vacuum to 10,000 pounds; temperatures range from sub-zero to 800°F; materials of construction include various stainless steels, aluminum, brass, plastic and Kel-F and Teflon coatings. Magnetic Gages are available with electric alarms.

Catalog and complete details are available from Jerguson Gage & Valve Company, 80 Adams Street, Burlington, Mass.

Personalities IN THE NEWS



John S. Russell

John O. Hills

R. O. Swayze

Russell and Hills Receive New Assignments for Mobil Oil As R. O. Swayze Retires

John S. Russell, operations superintendent in the Midland (Tex.) Division of Mobil Oil Company, has been named manager of production of the Los Angeles Exploration and Producing Division of Mobil, effective May 1, it was announced by **L. C. Stevens,** vice president of the Division. Russell succeeds **R. O. Swayze,** who retires June 1 after more than 40 years of service with the company.

John O. Hills, currently division controller of the Los Angeles Exploration and Producing Division, has been appointed division operations superintendent, replacing Russell in Midland.

Russell joined the Mobil organization in 1945. He is a graduate of the University of Texas with a B.S. in petroleum engineering. He has served in engineering and supervisory capacities in several areas in the Southwest.

Swayze joined the company in 1921 at Mobil's production office at Taft. In 1945 he became assistant manager for the Rocky Mountain area. Two years later he returned to California to become manager of California operations for the production department. He was elected vice president and director of production in 1953.

Swayze studied metallurgical engineering at the Missouri School of Mines. He is a member of the American Association of Petroleum Geologists, American Institute of Mining and Metallurgical Engineers, American Petroleum Institute, and three national engineering fraternities. He is also a member of the Los Angeles Chamber of Commerce.

Hills is a native of California, having received an engineering degree from the University of Southern California. He joined the organization in 1929 as a roustabout with General Petroleum Corporation. In 1936 he was placed on engineering assignments and in 1949 was made assistant manager of production engineering. He was later appointed assistant to director of production. When General Petroleum merged with Mobil in 1960 he was named controller of the Los Angeles Exploration and Producing Division.

R. D. Reedy Named Area Exploration Manager For Gulf Oil at Casper

R. D. Reedy has been named exploration manager for Gulf Oil Corporation's Casper (Wyo.) Area.

Reedy received his degree in geology and mathematics from the University of Texas and joined Gulf at Bakersfield, Calif., in 1953. He was named senior geologist at Sacramento, Calif., in 1958 and held that position until his present promotion. He succeeds **R. K. O'Connell,** who has resigned.

Gulf's Casper Area covers the states of Wyoming, Montana, North Dakota and South Dakota and the North Park area of Colorado.

Raleigh Hortenstine, Jr., Promoted By Continental-Emsco Company

F. M. Mayer, president of Continental-Emsco Company, has announced the promotion of **Raleigh Hortenstine, Jr.,** who will join the headquarters staff in Dallas as vice president and assistant to the president. Since 1954 he has been vice president in charge of Gulf Coast operations, with offices located in Houston.

A native of Dallas, Hortenstine joined Continental-Emsco there in 1934 as an office boy. He had advanced to store manager at Golden Meadow, Louisiana, before enlisting as a private in the U. S. Army in 1941. Discharged a captain, he rejoined the company as a salesman at Houma, Louisiana. He advanced to assistant district manager at New Iberia, Louisiana, and then became division manager over the South Louisiana and South Texas areas.

Ralph Hortenstine, Jr.

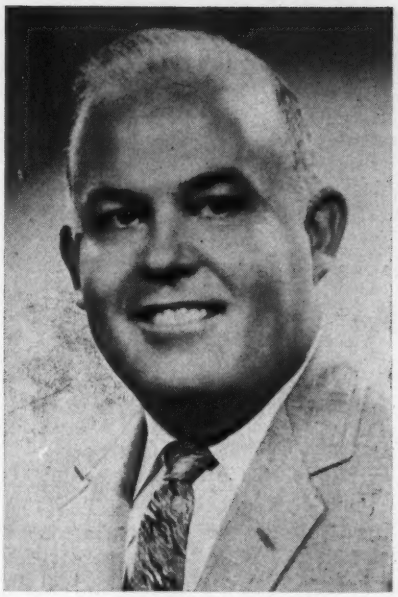
J. T. Crooker Appointed So. Division Manager, S. O. Co. Production Dept.

J. T. Crooker, former district superintendent at Anchorage, Alaska, for the producing department of Standard Oil Company of California—Western Operations, Inc., has been appointed manager of the department's Southern Division in California.

Crooker succeeds **W. C. Johnson,** who is retiring May 1 after 45 years' service with the company.

The new Southern Division manager, who will have headquarters at La Habra, joined Standard as a producing department engineer at Taft in 1938. Subsequent transfers took him to San Francisco in 1952; Red Wash, Utah, in 1956; and to Anchorage in 1957, where he supervised producing activities for Standard's oil operations on the nearby Kenai Peninsula.

Crooker's replacement in Anchorage will be **C. V. Chatterton,** whose previous assignment was as district superintendent for production at Red Wash with the Western Division of California Oil Company, a Standard of California subsidiary.



Max Klepfer

Max A. Klepfer Joins B & B Pipe & Tool Company Sales Force

Max A. Klepfer has recently joined the B & B Pipe and Tool Company sales force, according to announcement made by Ches Braly.

Klepfer started his career in the oil field sales and service in 1934 with Petroleum Equipment Company and has continued his activity since that time with Bethlehem Supply Company and Continental-Emsco Company.

B & B Pipe and Tool Company specializes in pipe threading, perforating, prepacked gravel liners and pipe repairs in its Long Beach plant.

Moore Named President Of Hancock Chemical

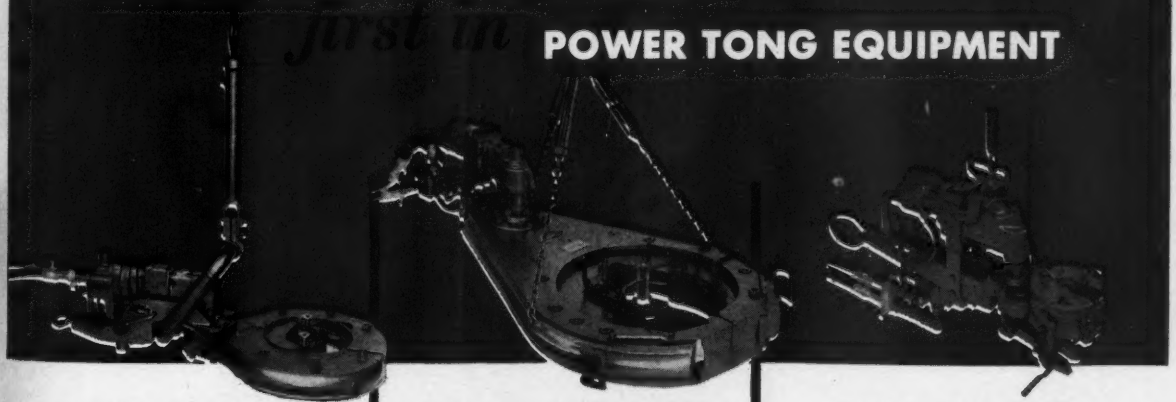
Fred C. Moore has been named president of Hancock Chemical Company, subsidiary of Signal Oil and Gas Company, according to a recent announcement by **Samuel B. Mosher,** chairman of the board of Signal.

The new president has been vice president, a director, and plant manager of Hancock Chemical since 1958.

He succeeds W. T. Hancock, who has been named chairman of the board. Hancock is also senior vice president in charge of manufacturing of Signal.

HILLMAN-KELLEY

first in POWER TONG EQUIPMENT



Hydraulic **POWER TUBING TONG***

Hydraulic **POWER CASING TONG***

Hydraulic **POWER SUCKER ROD WRENCH***

**Also available for air operation*

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Division Office: 5959 Clinton Drive, Houston 20, Texas
Branch Offices: Odessa, Texas • Oklahoma City, Okla. • Lafayette, La.
Shreveport, La. • Corpus Christi, Texas • Ventura, Calif. • Bakersfield, Calif.

Roscoe O. Hambric

Robert M. Erskine

Harry Hobbs, Jr.

Continental-Emsco Sets Up New Marketing Group; R. O. Hambric in Charge

An organization change and several new assignments in the management of Continental-Emsco Company have been announced.

A new group has been set up within the company, to be known as the Marketing Group, Machinery and Miscellaneous Merchandise. It will comprise the sales and merchandising divisions, and will report directly to the executive vice president of distribution.

Heading this new group is **Roscoe O. Hambric,** marketing manager of machinery and miscellaneous merchandise. Hambric, former general merchandise manager, joined Continental-Emsco in 1946 and has served in various assignments.

Robert M. Erskine, former assistant manager of sales, nontubular, is now sales manager of machinery and miscellaneous merchandise. Erskine began his employment with the firm in 1953 as a sales engineer.

Harry Hobbs, Jr., has been named merchandising manager of machinery and miscellaneous merchandise, also under the new marketing group. Hobbs, former assistant general merchandise manager, joined the company in 1953 as a field salesman.

Other new divisions have been set up and will be headed by **Carl N. Swanson,** director of purchasing, and **August O. Brochu,** director of transportation. These new divisions will also report to the executive vice president of distribution.

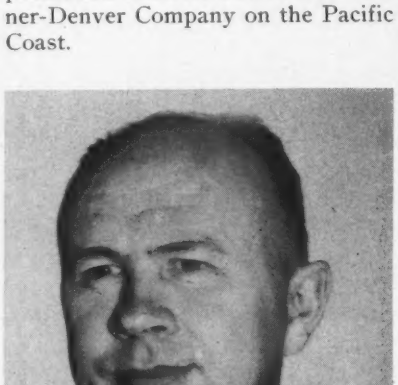
Swanson joined Continental-Emsco in 1916 and has had many years of experience in the field of purchasing. Brochu started with the company in 1947 in the traffic department.

Gardner-Denver Co. Transfers Elliott to Los Angeles

Bill D. Elliott was recently transferred from the Dallas office of Gardner-Denver Company to Los Angeles.

Bill, the son of the late Walt Elliott who was production general manager for Shell Oil Company, started his career in the oil patch with National Supply Company prior to World War II. After service as a pilot in the Army Air Corps he joined the Gardner-Denver organization, headquartering in Los Angeles, Seattle and Dallas. His latest move is in conjunction with the greatly expanded line of Gardner-Denver Company drilling and production equipment.

Elliott will be responsible for the promotion of oil field sales for Gardner-Denver Company on the Pacific Coast.



Bill D. Elliott

Powell Retires From Continental-Emsco

Continental - Emsco Company, Dallas, Texas, has announced retirement of **William T. Powell,** who for the past four years has been executive vice president in charge of manufacturing and engineering.

A native of Wales, Great Britain, Powell is a graduate mechanical engineer. He joined Emsco Manufacturing Company, Los Angeles, in 1937 and became its president in 1952.

On January 1, 1957, when Emsco and Continental Supply Company consolidated into Continental-Emsco Company, a division of The Youngstown Sheet and Tube Company, Powell moved to the Dallas headquarters in his present capacity.

W. P. Carver

W. P. Carver Joins Great Basins Petroleum Co.

W. P. Carver, formerly division land man, Western Division, Mobil Oil Company, has joined Great Basins Petroleum Company as vice president and director, Great Basins' President **R. G. Greene** announced recently.

Carver was manager of the Land Department of General Petroleum Company prior to its merger into Mobil Oil Company. His association with these two firms covered a twenty-two-year span.

Carver is a member and past chairman of the Public Lands Committee of the Western Oil & Gas Association. He is a member of the Petroleum Club and Los Angeles Chamber of Commerce.

Continental-Emsco Appoints Rieder V.P. in Charge of Manufacturing

President **F. M. Mayer,** Continental-Emsco Company, has announced the association of **R. C. Rieder** as vice president in charge of manufacturing and engineering.

Rieder was formerly vice president and works manager of Baker Perkins, Inc., manufacturer of chemical mixers and processing machinery.

He is a graduate of the University of Michigan with a bachelor of science degree in mechanical engineering.

R. C. Rieder

For Continental-Emsco, a division of The Youngstown Sheet and Tube Company, he will be in charge of all manufacturing and engineering activities. He joins the headquarters staff in Dallas, Texas.

Mayer states, "Mr. Rieder's unusually broad experience is well suited to Continental-Emsco's present program of diversification."

Rieder was slated to assume his new position about April 1.

W. C. Kaesche New President of Collier

Wm. C. Kaesche has been elected president of Collier Carbon and Chemical Corporation, it was announced recently. Kaesche, previously executive vice president, succeeds **Robt. T. Collier,** who moved up to chairman of the board of directors.

Dudley Tower, president of Union Oil Company, was elected a member of the board of directors to fill the vacancy created by the retirement of the former chairman, **W. L. Stewart, Jr.**

Paul Foreman, formerly treasurer and assistant secretary, replaces **Howard W. Wright** as secretary. Wright continues as a member of the board of directors. Two new corporate officers, **Jay Linderman** and **Ray Farthing,** were also named. Linderman, now treasurer, and Farthing, now assistant secretary, will fill the two positions previously held by Foreman.

Collier continues its accelerated expansion program with the recent acquisition of Pacific Guano Co., a marketer of chemical fertilizers and insecticides in California, Arizona and Nevada.

Collier, in a joint venture with another company, is now constructing a petroleum naphthalene plant in Delaware which is scheduled for completion in 1961. Plans to construct a similar plant in California are under way.

In the past six months, Collier has completed construction on three new production facilities which have been put into operation: a sulfuric acid plant at Los Angeles, a petroleum carbon plant in Contra Costa County, California, and a phosphoric acid facility at Kellogg, Idaho.

A Lady Of the Oil Industry

A lady veteran of the oil business, Blanche Kelley of Union Oil Company of California, who is also a lady veteran of the Navy in World War II, has been appointed to help plan the 19th National WAVES Reunion. This will be held in Los Angeles July 27-30 in 1961, following the tradition of meeting in different areas of the country each year so that eventually a maximum of former WAVES may conveniently attend.

She hopes to greet at the Los Angeles Reunion other women from the petroleum industry who have served in the Navy as WAVES. In addition to the customary luncheon, a fashion show and brunch, there will be tours of TV and motion picture studios, a trip to Disneyland, and cruises aboard private yachts in Balboa-Newport Harbor.

Shortly after the end of World War II, she returned to California and the Union Oil Company as secretary to the manager of foreign operations. A year later she became secretary to the vice president in charge of foreign and domestic exploration. She is still working for the same man, now retired and a petroleum consultant.

Blanche Kelley

When the Desk and Derrick Club of Los Angeles was formed in 1950 by women in the petroleum industry, Miss Kelley served as its first president and is now honorary president.

Union Oil Company has given Miss Kelley several special assignments and considers her selection to serve on the WAVES Reunion committee in the same category. The company also has opened its conference rooms to the committee and assisted it on several occasions with facilities and services.

California Research Makes Promotions

H. E. Knowlton has been appointed group supervisor, Process Correlation - Process Planning Section, Richmond Laboratory.

Dr. B. A. Fries has been promoted from group supervisor to research associate in the Petroleum Process Development Section, Richmond Laboratory.

B. W. Hotten has been promoted from senior research chemist to research associate, Greases and Industrial Lubricants Section, Richmond Laboratory.

J. L. Dreher has been promoted from group supervisor to supervising research chemist, Greases and Industrial Lubricants Section, Richmond Laboratory.

Field Development

LOS ANGELES BASIN

Imperial Valley Test

Clarence E. Harrison of San Pedro, Calif., has staked a location for Yuha No. 1 midway between San Diego and Yuma. The well will be a shallow test and is located on the northeast quarter of Section 20-17s-11e in Imperial County.

Earthquake Damages Wilmington Wells

At least 26 wells, and the possibility of more after a survey has been made, were damaged by a light earthquake in the Wilmington Field. Underground slippage of the earth's movement in some instances shears off the casing in some wells and in others causes the casing to collapse.

Orange County Test Abandoned

One mile northwest of the Kraemer Oil Field, The Termo Company abandoned its Garden Land No. 1 at a total depth of 3788 feet. Location of the test was on the northwest quarter of Section 26-3s-9w near the intersection of Yorba Linda and Grandview Avenues.

Universal Consolidated Completion

Universal Consolidated Oil Co. completed Community No. 306-A located near the intersection of Fox Hills Drive and Pico Blvd. from a total depth of 10,644 feet. With the exception of the depth, other data was not released. However, production is reported to be in excess of 400 b/d. Universal's 20th Century Fox No. 307-F in the same area is drilling below 3000 feet.

To the south, on the Rancho Golf Club, Signal Oil and Gas Company has one well drilling, Signal-Richfield-Rancho No. 10. Located near the intersection of Pico Boulevard and Kerwood Place on Section 36-1s-15w, the well is drilling below 6000 feet.

Castaic Junction Field Well

Humble Oil & Refining Co. is grading rig site for N. L. & F. Co. No. 71, a field development well located on the southwest quarter of Section 18-4n-16w.

Two Standard Development Wells

Standard Oil Company is grading locations for two Huntington Beach Field development wells. Huntington-A No. 157 is located at the intersection of Garfield and Edwards Street on Section 34-5s-11w, and Huntington-B No. 170 will be drilled near the intersection of Golden West Blvd. and Garfield Ave. on Section 2-6s-11w.

SAN JOAQUIN VALLEY

Reserve Outpost Test

Reserve Oil and Gas Company is ready to move in rotary to drill R.S.T. No. 16-29 on the southwest quarter of Section 29-11n-19w. The location is north and east of production at the Wheeler Ridge Field.

Kings County Wildcat

Humble Oil & Refining Co. has staked a location for Avenal Land & Oil Co. No. 5 located on the southeast quarter of Section 3-24s-17e. Rig site is in the Reef Ridge area four miles northwest of Pyramid Hills production.

Twelve Socony Belridge Wells

Socony Mobil Oil Company, Inc., has staked locations for twelve development wells in the South Belridge Field. Eight wells are located on Section 2-29s-21e and locations for four wells are on Section 3-29s-21e.

Texas Operator Drills In Kern County

Southern Union Production Company of Dallas is drilling below 6000 feet on S.P.R.R. No. 1 located on the northeast quarter of Section 31-29s-26e. The location falls about 1½ miles south of production at the Greeley Field. Local agent for the company is Theodore Sirene, c/o C. T. Corporation in the Security Building, Los Angeles. Located on a farmout from Continental Oil Company, the wildcat is scheduled as a 12,000-foot test.

Coast Wildcat Abandoned

Coast Exploration Company drilled to a total depth of 4215 feet on KCL No. 65X and after running electric log and formation tester plugged and abandoned the hole. The wildcat was located on the southeast quarter of Section 20-29s-27e, ½ mile west of production at the Fruitvale field.

North Tejon Outpost

Reserve Oil and Gas Company is grading rig site for B.W.T. No. 314-20, an outpost test located on the northwest quarter of Section 22-11n-19w. The location is approximately 1200 feet southwest from present production.

Coalinga Outpost Completion

Falcon Petroleum Co. completed Continental No. 3 pumping 50 b/d of 16 gravity oil and 60 b/d of water. Located approximately ½ mile east of production at the Westside area of the Coalinga Field on Section 8-20n-15e, the well was drilled to a total depth of 3087 feet and has 7" casing cemented at 2956 feet.

Helm Test Abandoned

Western Petroleum Company drilled to a total depth of 7007 feet on Noble No. 1 and after running logs plugged and abandoned the test. The well, a northeast offset to production, was located on the southeast quarter of Section 9-17s-18e in Fresno County.

Rosedale Ranch Development

Standard Oil Company has staked locations for two development wells in the field. KCL Lease 31 No. 73-1 will be drilled on the northeast quarter of Section 1-29s-26e, and KCL Lease 31 No. 73-2 is located on the northeast quarter of Section 2-29s-26e.

McKittrick Deep Test Under Way

Tidewater Oil Company is drilling below 3000 feet on Getty-Quinby No. 1, its deep test in the McKittrick

BETHLEHEM SUCKER RODS

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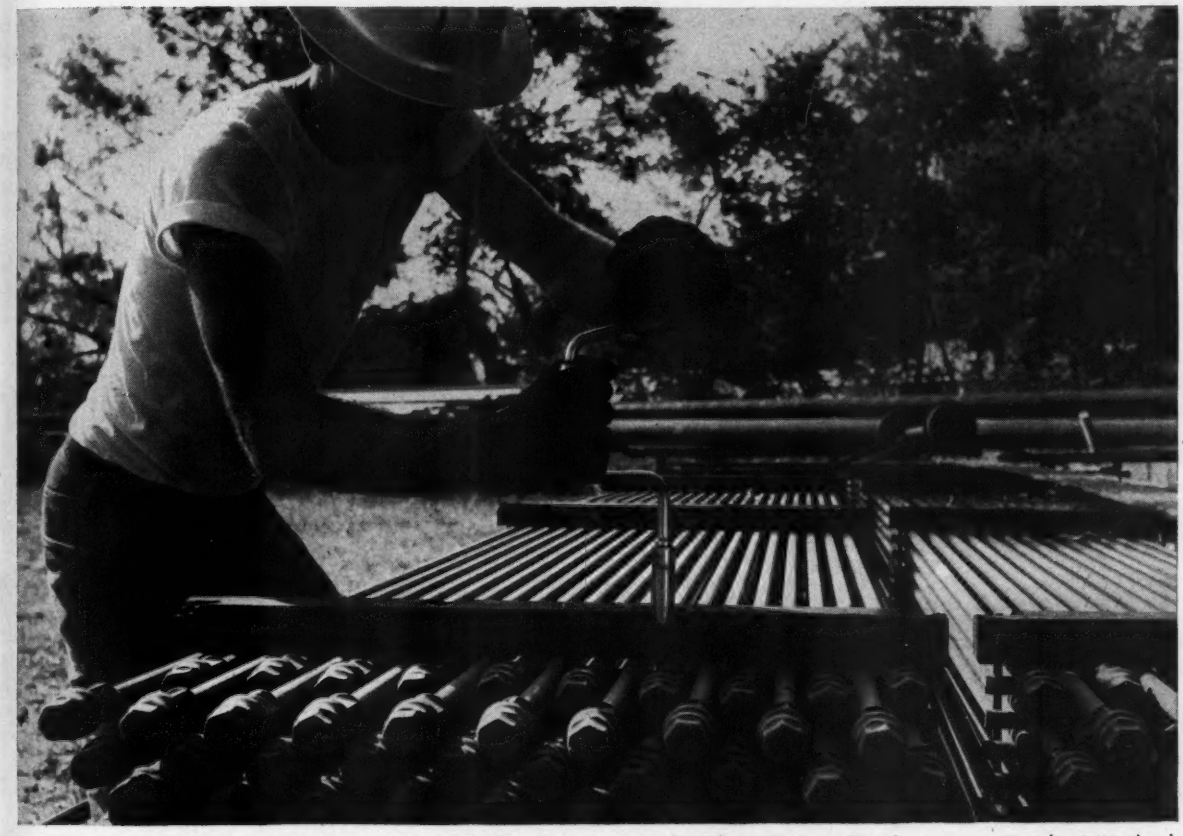

Socket wrench easily opens a bundle of Bethlehem sucker rods, tightly packed as a unit to prevent damage in transit. Special spacers separate and protect each rod.

Meticulous

That's the word to describe the way each Bethlehem sucker rod is guided with care through the entire cycle from manufacture to bundling and shipping.

Bethlehem also makes a complete line of sucker rod accessories. For further information on quality-controlled Bethlehem sucker rods, contact your nearby Bethlehem distributor. He's ready to serve you.

These four grades cover any pumping needs.

Rod	Type	Heat-Treatment	Yield Point-psi		Tensile Strength-psi	
			Min.	Av.	Min.	Av.
X2	Carbon-Manganese	Normalized	65,000	72,000	93,000	100,000
X Mayari	Nickel-Chromium	Normalized	60,000	65,000	90,000	95,000
46	Nickel-Molybdenum	Normalized and Tempered	67,000	75,000	82,000	90,000
41	Manganese-Chromium-Molybdenum	Normalized and Tempered	100,000	110,000	120,000	130,000

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area. Located on the northwest quarter of Section 19-30s-22e, the test is scheduled to be drilled to about 10,000 feet.

Vallecitos Development Well

Shell Oil Co. is grading location for F. & I. No. 46-31, a field development well located on the southwest quarter of Section 31-16s-11e. The well will be drilled to about 4000 feet.

Helm Field Well

Nordon Corporation, Ltd., is moving in rotary to drill Noble No. 5-9 on the southwest quarter of Section 9-17s-18e in Fresno County.

Golden Bear Development Well

Golden Bear Oil Company is grading rig site for Oxford No. 16, a development well in the Midway-Sunset Field. Location of the well is on the northeast quarter of Section 27-31s-22e.

Two Cymric Field Wells

Union Oil Company of Calif. is grading locations for two development wells in the field. McKittrick Fee No. 13 is located on the southeast quarter of Section 6-30s-22e and Welport No. 13 will be drilled on the southeast quarter of Section 36-29s-21e.

NORTHERN CALIFORNIA

New Gas Field Discovery

Gulf Oil Corp. of California completed David S. Lewis No. 1 as a new field discovery flowing 2400 mcf of gas per day from the perforated interval 8246-8256 feet. The completion was drilled to a total depth of 9200 feet and cemented 4½" casing at 8322 feet. Cement was cleaned out to 8275 feet. Gulf's new discovery is located on the southeast quarter of Section 23-13n-1e in Sutter County two miles southeast of the Kirk Gas Field, and has been designated as the Lewis Field.

Glenn County Outpost

R. W. McBurney, Operator, is drilling below 2000 feet on South Willows Creek-Knight No. 2 located on the northeast quarter of Section 31-20n-2w. The well is ½ mile southwest of production at the Willows-Beehive Bend Gas area and will be an F Zone test.

Atlantic Oil Company Test

Atlantic Oil Company is drilling below 2000 feet on N. L. & F. No. 1 located on the northwest quarter of Section 25-15n-1e. The test is in the Grimes area, slightly over one mile northeast of the Company's U. E. Frye No. 1, discovery well of the area.

Vernalis Well Recompleted

Porter Sesnon et al and Great Basins Petroleum Co. resumed operations on Mohawk-Boltzen-Hunter No. 76-16 and after perforating at seven spots within the interval 3773-4175 feet, recompleted the well flowing in excess of 4000 mcf of gas per day with all intervals open. The well is located on the northwest quarter of Section 16-3s-6e in San Joaquin County and has a total depth of 5067 feet with 5½" casing cemented at 5000 feet.

Dunnigan Hills Gas Test

Standard Oil Company is grading roads and rig site for A. M. Richey No. 1, a Dunnigan Hills outpost gas test, to be drilled on the southwest quarter of Section 36-11n-1w in Yolo County. Nearest gas production is at the Artnell Company's Universal-Richey No. 1, a deeper pool discovery 4000 feet to the west.

Glenn County Wildcat Test

Sunray Mid-Continent Oil Company is drilling below 3000 feet on Sunray - McCulloch - Mohawk-T. E. Heidrick No. 1 located on the northwest quarter of Section 18-20n-2w in Glenn County. The well is approximately ¾ mile northwest of the Willows-Beehive Bend Gas Field and will test the F Zone of the Cretaceous at about 7000 feet.

West Grimes Outpost

Gulf Oil Corp. of Calif. is grading roads and rig site for McElroy Unit No. 1 to be drilled on the southeast quarter of Section 10-14n-1w in Colusa County. The test is ¾ mile southeast of its C. B. Stoddard No. 1 which established a potential of 50,000 mcf per day on an open flow test.

Grimes Outpost Completed

Atlantic Oil Company completed Grye Unit No. C-1 flowing 5900 mcf of gas per day through a 20/64" bean with 2625 psi flow pressure. 5½" casing is cemented at 6955 feet and gun perforated at six intervals within 6109-6865 feet. Located on the northeast quarter of Section 34-15n-1e in Sutter County, the well is a ½-mile westerly step-out to Frye Unit No. B-1. Total depth of the completion is 7500 feet.

Standard Gas Test

Standard Oil Co. is grading roads and rig site for Reclamation District 108 No. 1 located on the northwest quarter of Section 21-12n-1e in Yolo County. Rig site falls one mile east of the Sycamore Slough Gas Field.

Union Wildcat Test

Union Oil Company has staked location for Lohse No. 1 to be drilled on the southeast quarter of Section 25-21n-3w near Artois in Glenn County. This wildcat test is about 2½ miles northeast of production at the Artois Gas Field.

River Island Development Well

Brazos Oil and Gas Co. is drilling below 3000 feet on Broad Slough Unit No. 1 located on the southeast quarter of Section 29-4n-4e in Sacramento County. The well is an offset to production.

San Joaquin County Recompletion

Porter Sesnon et al and Great Basins Petroleum Co. recompleted Sesnon-Vernalis Unit 2 No. 27-15 flowing 4000 mcf of gas per day through a ⅜" bean. First completed in 1958 from the perforated interval 3673-3710 feet, the well was perforated at eight intervals within 3794-4192 feet and recompleted. Located on the southwest quarter of Section 15-3s-6e, an outpost to the Vernalis Gas Field, total depth of the well is 4274 feet with 5½" casing cemented at 4261 feet.

Arbuckle Outpost Completed

Occidental Petroleum Corp. completed Arbuckle Unit HH No. 1 flowing 5000 mcf of gas per day from the perforated interval 4584-4622 feet. Flow was through a ⅜" bean with pressures of 1250/1450 psi. Located on the southwest quarter of Section 2-13n-2w in Colusa County ½ mile north of the field discovery well, the completion was redrilled to 6316 feet and has 5½" casing cemented at 4795 feet. The well was originally drilled by Western Gulf Oil Company in 1958 to a total depth of 6533 feet and was abandoned.

Compton Landing Gas Test

Gulf Oil Corp. of Calif. is drilling below 2000 feet on Capital Company No. 1, a wildcat gas test located on the northwest quarter of Section 22-17n-1w in Colusa County. The test is 2½ miles east from the Compton Landing Gas Field.

The all-electric oil rig goes to sea

Two miles off the California coast, near Santa Barbara, a man-made platform known as "Hazel" stands in 100 feet of ocean. On it, crews drill for oil. Their equipment is all-electric.

This is the Summerland oil rig developed by Standard Oil Company of California and Humble Oil and Refining Company. It was designed to drill up to twenty-five wells from the same site, two at a time. It is powered from shore by a two-mile 16 kv underwater cable.

Economical and dependable power

Electricity was selected to power this rig for two reasons. First, economy. Maintenance is handled by only one man working only three hours a week. And there is no need to haul fuel from shore—no expensive storage tanks to build in the ocean.

Second, dependability. Fewer moving parts reduce the chance of breakdown and require less maintenance. Equipment operates around the clock.

The Summerland rig is an outstanding example of the advantages of electric oil well equipment. Whatever, or wherever, your power problems may be, find how easily they can be solved by inexpensive, dependable electricity. Just call your local Edison office. One of our power consultants will be glad to review the details with you.

SOUTHERN CALIFORNIA Edison COMPANY

McMullin Ranch Outpost Completion

Great Basins Petroleum Company completed Signet-Brown 33-23 flowing 3500 mcf of gas per day through a ⅜" bean from the jet perforated intervals 5981-5989 and 5957-5946 feet. Total depth of the completion is 6497 feet with 4½" casing cemented at 6080 feet. Located on the northwest quarter of Section 23-2s-6e in San Joaquin County, the completion is the first of a five-well development program on a farmout from the Signet Operating and Exploration Company.

Rio Vista Field Well

Brazos Oil and Gas Co. is starting Langhart-Spreckles No. 6, a field development well located on the northeast quarter of Section 23-4n-3e in Sacramento County.

COASTAL AREA

Standard Outpost Test

Standard Oil Company is drilling below 4000 feet on Claberg No. 1 located on the northwest quarter of Section 32-2n-21w in Ventura County. The well is an easterly extension test of the Oxnard Field.

Rincon Wildcat to Deepen

G. E. Kadane & Sons have taken over the Rincon Investment No. 1 and will deepen from its present depth of 7466 feet. Located on the northwest quarter of Section 6-3n-24w in Ventura County about two miles northwest of the Rincon Field, the wildcat was drilled to its present depth by the Continental Oil Co.

Phillips Offshore Test

Phillips Petroleum Company is preparing to drill State 2207 No. 12 on projected Section 13-4n-34w. The test is offshore from Cojo in Santa Barbara County.

Richfield Offshore Test

Richfield Oil Corp. will drill Gaviota C. H. No. 5 offshore from Gaviota in Santa Barbara County. Richfield's test is located on projected Section 7-4n-32w approximately 1½ miles offshore.

OTHER AREAS

Alaska

Union Oil Company of Calif. is preparing location for Sterling Unit No. 23-15 to be drilled on the southwest quarter of Section 15-5n-10w. This wildcat location falls about eight miles northeast of Union's Kenai gas production.

Standard Oil Company of Calif. and Richfield Oil Corp. are ready to spud Soldotna Creek Unit No. 43-4 located on the southeast quarter of Section 4-7n-9w in the Soldotna Creek area of the Swanson River Field. Soldotna Creek Unit No. 12-3 located on Section 3-7n-9w was completed from a total depth of 10,850 feet flowing 450 b/d of 37 gravity oil with a cut of 1 per cent. 7" casing is cemented on bottom.

Montana

R. K. Summy of Long Beach, California, has staked a location for Lockie Livestock Company No. 1 on the southwest quarter of Section 33-13n-35e in Rosebud County. Summy's well is located on the Southeast Alice Dome and will test the Heath at approximately 4300 feet.

Shell Oil Company and Northern Pacific Railway Company is grading rig site for Well No. M23-15 NP on the southwest quarter of Section 15-9n-58e in Fallon County. Scheduled to be drilled to about 7450 feet to test the Madison, the well is a southeast offset to the operator's discovery well, No. M12-15 NP, completed pumping 370 b/d oil and 240 b/d water from the Madison perforations 7283-7305 feet. The discovery is on the Cedar Creek Anticline between the Cabin Creek and Monarch Fields.

Humble Oil & Refining Company and Phillips Petroleum Co. drilled to a total depth of 9075 feet on McKee No. 1, their deep test at the Tule Creek Field, and failing to develop deep production in the lower portion of the hole, have plugged back to 7850 feet for a Devonian completion. Location of the test is on the southeast quarter of Section 13-30n-47e in Roosevelt County.

T. A. Schwartz is grading location for a westerly extension test of the Dwyer Field on the northwest quarter of Section 30-32n-59e in Sheridan County. The rig site is 1½ miles from present production, and will test the Madison.

Nevada

Suntide Petroleum Company, a wholly owned subsidiary of Sunray Mid-Continent Oil Co., is building roads and rig site for Nevada-Federal No. 1 to be drilled on the northeast quarter of Section 5-15n-57e in White Pine County. The well will be drilled to about 5000 feet to test the Mississippian. Suntide's drill site is forty miles north of Shell Oil Company's production at the Eagle Springs Field, Nevada's only oil field. Current production of the field is 400 b/d.

New Mexico

Bonanza Oil Company is grading roads and rig site for Jicarilla No. 1 to be drilled on the northwest quarter of Section 2-22n-3w in Sandoval County. The location is about 15 miles east of the nearest Dakota production and is scheduled to go to about 7500 feet to test the Dakota.

Royal Development Company of Albuquerque has staked location for six Gallup tests in San Juan County. Three of the wells, L-2, L-3 and L-4, will be drilled on the southwest quarter of Section 16-29n-18w, and I-1, I-3 and I-4 are located on the southeast quarter of Section 17-29n-18w.

The most northwesterly well of the Cha Cha pool, Navajo-G No. 5, was completed by Pan American Petroleum Company flowing 170 b/d oil through a 20/64" bean from the Gallup perforations 4534-4528 feet. Located on the southeast quarter of Section 18-29n-14w in San Juan County, the completion was drilled to a total depth of 4668 feet and cemented 4½" casing at 4664 feet.

El Paso Natural Gas Co. has staked a location for San Juan Unit No. 29-5 on the southeast quarter of Section 7-29n-5w in Rio Arriba County. The test is in the western part of the San Juan Basin and will be drilled to about 13,500 feet as a Granite test.

Dorfman Production Company extended the Escrito Field to the northwest with the completion of Nancy-Federal No. 1 flowing 220 b/d oil from the Gallup perforations 6104-6153 feet through a 20/64" bean. Located on the southeast quarter of Section 12-24n-8w in San Juan County, the completion was drilled to a total depth of 6205 feet and cemented 4½" casing at 6203 feet. Top of the Gallup was logged at 5070 feet.

Utah

Miami Petroleum Company is preparing to drill Navajo No. 108-1 on the northwest quarter of Section 24-42s-24e in San Juan County. Located between production at the

Anido Creek and Desert Creek Fields, the well will test the Desert Creek at approximately 5700 feet.

Tidewater Oil Co. has staked location for Unit No. 1, a Grand County wildcat test on the Horse Point Anticline in the northeast quarter of Section 14-16s-23e. Located midway between Texaco Inc.'s Fence Canyon discovery and Tidewater Oil Company production to the southeast, the wildcat will go to about 9000 feet to test the Morrison. A total of 24,642 acres are contained within the Unit.

Shamrock Oil & Gas Co. continues to test Rock House Unit No. 3 after gauging gas at a 3310-mcf-per-day rate from the Wasatch perforations 4458-4462 feet. Flow from the Wasatch perforations 4374-4368 feet and 4306-4296 feet was 1250-mcf-per-day rate. Located on the southeast quarter of Section 11-11s-23e in Uintah County, the test is approximately ¾ mile northeast of Shamrock's Rock House Unit discovery well. Total depth of the well is 5940 feet, with top of the Wasatch at 3270 feet and top of the Mesaverde at 5178 feet.

Davis Oil Company is preparing to move in tools to drill Chinle Wash No. 1 located on the southwest quarter of Section 23-43s-21e in San Juan County. The test is in the Chinle Wash area of the Southern Paradox Basin and will test the Molas at 6200 feet.

Davis Oil Company has staked a location for Honolulu No. 1 located on the northwest quarter of Section 20-42s-26e in San Juan County. The well will be a 6200-foot Paradox Salt test and is nine miles southeast of the Desert Creek Field.

Honolulu Oil Corp. is ready to grade rig site on Bitter Creek No. 1, a Uintah County wildcat test. Location of the well is on the southeast quarter of Section 30-11s-23e and the test will be drilled to about 7150 feet as a Castlegate test. Location for the test falls four miles southwest of the Shamrock Oil & Gas Co.'s Rock House Unit discovery well. Shamrock's discovery flowed 900 mcf gas per day from the Mesaverde and 12,500 mcf from the Wasatch.

Wyoming

Stuarco Oil Company is drilling below 6000 feet on Butler No. 1 located on the southeast quarter of Section 15-49n-68w in Crook County. The well is located between the Donkey Creek and Butler Ranch production and will test the Morrison at about 6200 feet.

Jeff Hawks has staked location for Dillinger No. 1, a Crook County wildcat test on the northwest quarter of Section 19-51n-68w. The test is west of the Miller Creek production and will be drilled to approximately 7900 feet to test the Minnelusa.

Location for a Weston County wildcat test has been staked by Edward Mike Davis on the northwest quarter of Section 20-47n-68w. The well, Bishop Land & Livestock Company No. 1, is southeast of production at Raven Creek and will test the Minnelusa at about 9000 feet.

Ferguson & Bosworth of Bakersfield, California, completed Batzer-Government No. 1 as a new field discovery flowing at an estimated rate of 6250 mcf of gas per day from the Muddy perforations 2478-2486 feet. Top of the Muddy was logged at 2477 feet. Location of the discovery is on the southwest quarter of Section 26-31n-82w in Natrona County.

Union Oil Company of Calif. has staked a location for Olive Johnson No. 1 on the southeast quarter of Section 32-37n-64w in Niobrara County. Union will test the Dakota.

Champlin Oil & Refining Co. is recovering oil at a 240-b/d rate with a 2 per cent cut on a pump test on Shell-Schuricht No. 1 from the Minnelusa perforations 6282-6291 feet. Located on the southwest quarter of Section 6-50n-67w in Crook County, the well has a total depth of 6372 feet and has 5½" casing cemented at 6371 feet. The outpost test is two miles south of production at Prong Creek and logged the top of the Minnelusa at 6270 feet.

Locations for two Cretaceous tests have been staked in the Powder River Basin by the Midland Exploration Company. Winnegar-State No. 1, a 7800-foot Morrison test, will be drilled on the southeast quarter of Section 36-51n-71w in Campbell County on a farmout from Pan American Petroleum Co. and British-American Oil Producing Co. In Weston County, Midland Exploration's second wildcat test, Dowdy-Williams No. 1, is located on the southwest quarter of Section 29-47n-67w and will test the Dakota at about 7000 feet. Location falls about ten miles southeast of Coyote Creek production.

Standard Oil of Calif. Earnings Show Good Gain

Standard Oil Company of California had net earnings in 1960 of $266,112,746, or $4.21 a share, compared with $253,599,061, or $4.01 a share, in 1959, the Company's annual report disclosed.

The report, signed by R. G. Follis, chairman of the board, and T. S. Petersen, president, attributed the gain to "a general improvement in all major branches of the business."

Sales and other operating revenues, including excise taxes, totaled $1,922,475,000 in 1960, some 7 per cent higher than in 1959, the company reported. World-wide gross production of crude oil and natural gas liquids, including Standard's share of the production of Eastern Hemisphere affiliates, was 987,600 barrels daily, an increase of 11 per cent over 1959.

Reviewing the 1960 results, Follis pointed out that the net income was 76 per cent above what it was a decade ago, and the third highest in company history.

"The decade from the end of 1950 through 1960 was one of growth for our company as a whole," Follis commented, "with major gains continuing in all operating and financial categories."

Comparing 1960 figures with those reported at the end of 1950, Standard's chairman noted that sales and other operating revenues more than doubled, world-wide gross production of crude and natural gas liquids also was more than twice as high, and world-wide refinery runs gained 95 per cent.

Follis called particular attention to the growth of the company's operations in the chemicals field. From the end of 1950 through 1960 the company's sales in this field increased by approximately 260 per cent.

In the 10 years just past the company invested some $3.14 billion in capital and exploratory expenditures, Follis reported, making sizable additions to its oil reserves and expanding and modernizing virtually all of its refining, marketing and transportation facilities.

LAUGH

A couple of Scotsmen were walking along a road and one was jingling something in his pocket. His pal asked, "Jock, you must have a lot of money in there?"

"Oh, no," said Jock, "that's my wife's false teeth. There's been too much eating between meals at our house."

When Bill rolled in plastered for the third night in a row, his wife dragged him to the window and pointed out over the city. In the distance they could see the blazing lights of a big distillery.

"See how big it is?" she said. "They can always make it faster than you can drink it."

"Maybe so," answered the husband, "but at least I got 'em working nights."

"Are you really content to spend your life walking about the country begging?" a housewife asked a young bum.

"No, lady," answered the tramp. "I often wish I had a car."

"When I was in New York," Ralph said, "I saw a fellow drop his watch from the top of a tall building, then go down on the elevator and rush out into the street to catch it."

"That sounds impossible," remarked his listener.

"Well, the watch was slow."

The little girl was queried, "How many brothers and sisters do you have, Sue?"

"Nine."

"Goodness, that many children must cost a lot."

"Oh, no," answered Sue. "We don't buy them—we raise them."

"She his best girl?"

"No, just necks best."

And then there was the farmer who put up his sign that read: "No Trespassing. Survivors Will Be Prosecuted."

THIS

Truck Driver: "Say, kiddo, what kind of pie is this—apple or peach?"

Diner Waitress: "What's it taste like, Mac?"

Truck Driver: "Glue!"

Diner Waitress: "Well, then, it's peach. The apple tastes like putty."

FAMOUS EPITAPHS

Bopster: "Don't Dig Me Man—I'm Gone."

Hypochondriac: "I Told You I Was Sick."

"Now that will be a premium of fifteen dollars per month on straight life," said the insurance agent. "That is what you want, isn't it?"

"Well," the customer replied, "It's okay, but I would like to play around a little on Saturday nights."

Manicurist to playboy in the barber chair: "I don't think I should go out with you, I'm married."

Playboy: "Ask your husband, I'm sure he won't mind."

Manicurist: "You ask him, he's shaving you."

Doctor: "You have hydropsy—too much water in the body."

Retired colonel: "Why, I've never had a glass of water in my life. Must be that blasted ice."

OFF!!

The new hormone drugs are mighty good for what fails you.

Averages can be somewhat deceptive. Witness the case of the statistician who drowned while wading across a river with an average depth of two feet.

While his birthday party was being planned, little Bill was asked for a list of friends he would like to invite. He started off confidently:

"I want my grandpa, and Uncle Tom, and Aunt Mary; and . . ."

"But wait a minute, Bill," his mother interrupted. "Everyone of those you've mentioned is an older person."

"Well," Bill replied, "I've been noticing—they're the only ones who ever seem to have any money."

The story told to four-year-old Charles was about a little boy who had some exciting adventures. When the story was finished, Charles asked, "But where was the boy's mother?"

"The story didn't mention his mother," was the reply, "so perhaps he didn't have a mother; maybe she was dead."

Charles commented dramatically, "I bet she was killed in a nervous wreck."

A liquor store we know has been sending these cards to clients and prospects: "Since you can't refrain from drinking, start a saloon in your own home. Be the only customer and you won't have to pay a license. Give your wife $55 to buy a case of whiskey. There are 240 drinks in a case. Buy your drinks from your wife at 60 cents each and in twelve days you will have $89 and the $55 to buy another case. If you live ten years, continuing to buy whiskey from your wife, and die in your boots, your widow will have $27,085.47 in the bank—enough to bring up the children, pay off the mortgage, marry a decent man and forget she ever knew a bum like you."